PC Marine

Jeddah Port Project

Geotechnical Interpretive Report

ACTS/KSA/Q-20017/22/Rev.01

01/02/2023

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GEOTECHNICAL Division
ACTS
س.ت: ٤٠٣٠٢٢١١٦٨

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1. INTRODUCTION

1.1. General

At the request of **PC Marine,** Advanced Construction Technology Services (ACTS) have carried out a ground investigation campaign at the “**Jeddah Port Project**”, which is located in Jeddah, KSA.

This geotechnical report covers the factual data collected from the site works and the laboratory tests up until now. Additional tests are yet to be performed in the upcoming days. The purpose of this investigation is to obtain detailed information about the surface and subsurface strata along with their geological conditions, physical and chemical properties based on the in-situ collected data and the results of the laboratory tests performed on selected samples. The field works covered in this report commenced on September 11, 2022 and were completed on October 31, 2022.

1.2. Site Description

The project is located in Jeddah Port, KSA. The area at the project location is a reclaimed area having an elevation of +3.00m MSL. The project will involve the construction of a new quay wall having a design depth of 16.0m. The same is intended to replace the existing quay wall which has a design depth of 11-12.0m.

The figure below represents an aerial view of the project site location from Google Earth.

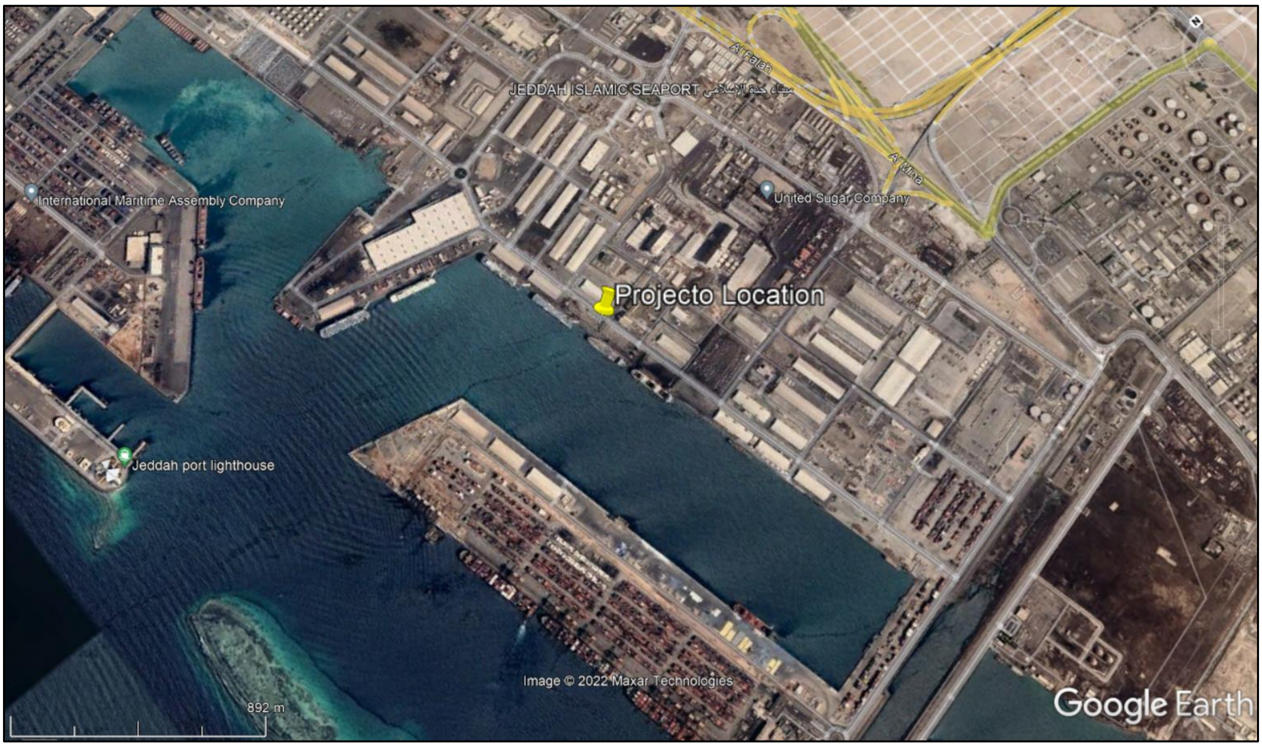
JEDDAH ISLAMIC SEAPORT ميناء جدة الإسلامي
Al Falah
Al Mina
International Maritime Assembly Company
United Sugar Company
Projecto Location
Jeddah port lighthouse
Image © 2022 Maxar Technologies
892 m
Google Earth

Figure 1: Site Location from Google Earth

2. FIELD WORKS

The field works for the proposed project comprised of drilling ten (10) nos. of boreholes and performing in-situ testing and laboratory testing. The location of BH-01" was shifted in accordance with the client's request since a very hard layer was encountered. Based on that BH-01 was stopped at 18.5 m depth and another borehole (BH-01) was drilled at a different location. The list of the completed exploratory holes along with their respective as built-coordinates, depths and elevations are presented in **Table 1.**

Table 1: Borehole Details

BH No.	Start Date	End Date	Easting [m UTM]	Northing [m UTM]	Elevation [m MSL]	Depth [m]
BH-01	21-09-2022	01-10-2022	517,135.72	2,373,764.36	3.0	40.0
BH-01"	14-09-2022	21-09-2022	517,129.50	2,373,778.15	3.0	18.5
BH-02	11-09-2022	13-09-2022	517,141.67	2,373,767.92	3.0	20.0
BH-03	06-10-2022	09-10-2022	517,202.45	2,373,328.36	3.0	40.0
BH-04	02-10-2022	05-10-2022	517,228.67	2,373,083.71	3.0	40.0
BH-05	10-10-2022	12-10-2022	517,210.52	2,373,346.32	3.0	20.0
BH-06	12-10-2022	16-10-2022	517,166.28	2,373,565.03	3.0	40.0
BH-07	18-10-2022	21-10-2022	517,276.95	2,372,928.68	3.0	40.0
BH-08	22-10-2022	26-10-2022	517,305.79	2,372,685.77	3.0	40.0
BH-09	30-10-2022	31-1020-22	517,339.03	2,372,686.75	3.0	20.0

Figure 2 below shows and aerial view of the boreholes locations from Google Earth.

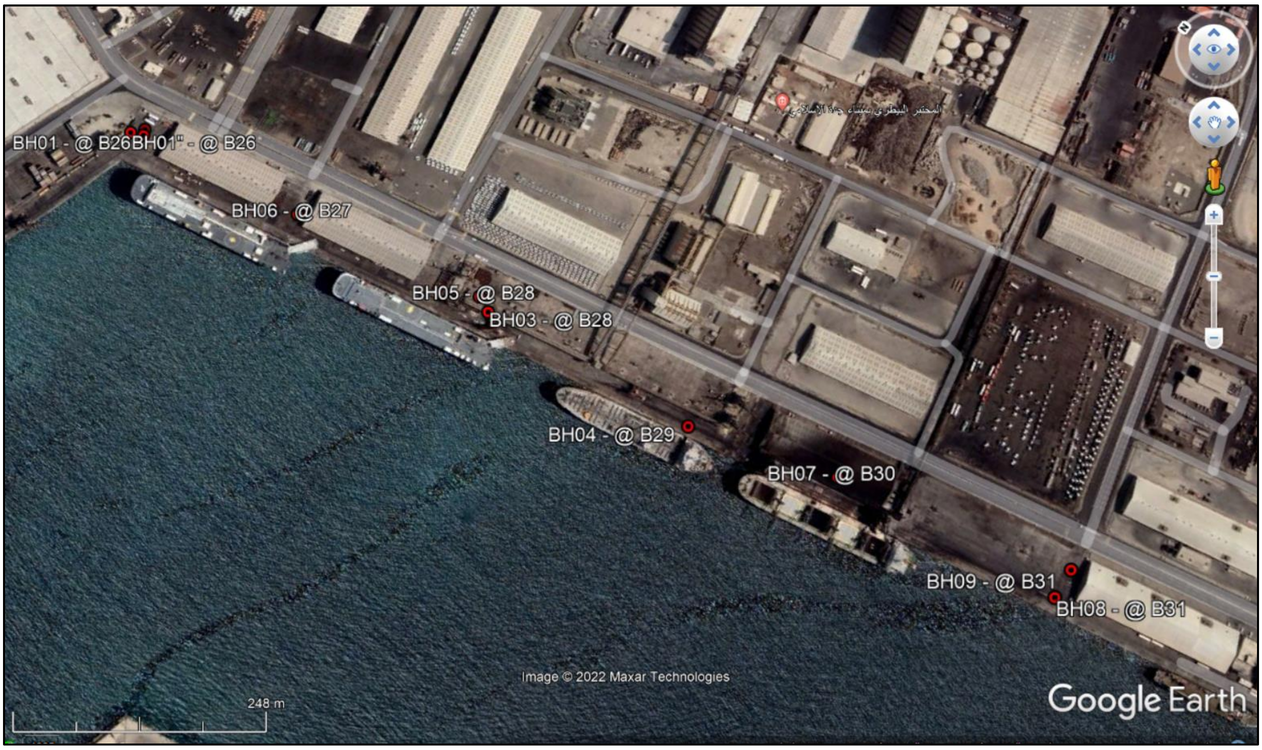

Figure 2: Aerial View of the Boreholes Locations from Google Earth

2.1. Summary of Field Works

The site works completed on the project site at the time of preparing the report are summarized as follows:

A. Drilling ten (10) Nos. of boreholes using rotary coring techniques down to a depth of 18.5 to 40.0m each below the existing ground level.
B. Soil and rock sampling in boreholes to obtain core samples having a diameter of 83mm.
C. Carrying out standard penetration tests (SPT) in drilled boreholes when applicable.
D. Backfilling the boreholes with arisings.

2.2. Project Resources and Organization

In order to complete the above scope, **ACTS** mobilized one (01) drilling rig to the project site along with the necessary tools and competent personnel in order to supervise, coordinate the site activities and to carry out the required in-situ tests. The rig selected for this operation was the B48N equipped with an automatic SPT hammer and a wire-line system for rock core and soil samples retrieval.

2.3. Surveying – Setting Out

The coordinates of the exploratory holes were provided and specified by **PC Marine**. Setting out was carried out by ACTS in accordance with BS 5930:2015 using a DGPS system connected to UTM with an accuracy less than 30 cm did setting out at each location.

The above survey is in accordance with the Universal Transversal Mercator coordinate system (38R UTM) for the reported horizontal coordinates and (EGM 2008) for the reported elevations.

2.4. Drilling of Boreholes

Regular sampling was carried out in soils and continuous coring in soil and rock was carried out using a PQ type core barrel with a double-tube barrel and a split inner barrel (with the use of appropriate bits to prevent the washing of erodible material during coring and maintaining best recovery possible). The retrieval of the samples was done using a wireline system. Fresh non-saline water was used as a flushing medium. The casing was used to support the borehole sides to prevent any collapse.

The final borehole depth as well as the groundwater table level were measured and verified during and at the end of each boring using a dip meter.

2.5. Sampling

Sampling of soil, rock and groundwater was carried out in accordance with BS 5930: 2015. The project number, borehole number, depth of sample, and the date of sampling labeled the retrieved samples. The retrieved samples were transferred to ACTS Warehouse in Doha upon completion of each borehole.

2.5.1. SPT Samples

Standard penetration test (SPT) was carried out in accordance with BS EN ISO 22476-3. The disturbed soil samples retrieved from the split spoon were placed immediately in airtight plastic bags for classification purposes. The weight of these samples was varying depending on the length penetrated and the quantity retrieved from the split spoon.

2.5.2. Rock Core Samples

Upon removal of the inner split barrel the core was placed in a core box such that the cores are retained in position. The retrieved cores were wrapped with thick layers of plastic cling film. The core depths (Top and Base) were marked on the core box. Wooden spacers were placed at the top and base of each core run. The cores were examined and logged in accordance with BS 5930:2015 (Code of practice for site investigation), BS EN ISO 14689-1 and Clarke, A.R and Walker, B.F (A proposed Scheme for the classification and nomenclature for use in the engineering description of Middle East sedimentary rock). In addition, Total Core Recovery (TCR), Solid Core Recovery (SCR) and Rock Quality Designation (RQD) were measured on site.

Upon receipt of the client’s approval, the core boxes were transported to ACTS Warehouse in Doha for storage purposes and to protect them against sunlight, drying and vibration. Afterwards then the core boxes were photographed using a digital camera. The photographs were taken with legible identification labels, scale and a standard color reference chart clearly visible.

2.6. Logging Procedure

The logging and description of soil and rock samples was carried out in accordance with BS 5930:2015 (Code of practice for site investigation), BS EN ISO 14688 for soil, BS EN ISO 14689-1 for rock and Clarke, A.R and Walker, B.F (A proposed Scheme for the classification and nomenclature for use in the engineering description of Middle East sedimentary rock). Typical sample description as follow: strength, structure (bedding thickness), color, texture, rock type, weathering, carbonate content, discontinuity description. The borehole logs, & photos, are presented in **Appendix A & B**. The geological section is presented in **Appendix C**.

2.7. Backfilling of the Boreholes

The boreholes were backfilled with arisings from the drilling operation.

3. In-Situ Tests

3.1. Standard Penetration Test

Standard Penetration Test (SPT) was carried out mostly in the superficial deposits when encountered as well as on rock strata, where low core recovery and very poor RQD's were encountered. The test was carried out in accordance with BS EN ISO 22476-3 to assess the relative densities of the ground materials. The SPT hammers used were of the type incorporating an automatic trip mechanism to ensure free fall. When the test was performed in gravelly material or highly to completely weathered rock, a 60° cone replaced the driving shoe of the split spoon sampler and the N-values extended up to 100 blows.

The SPT's were corrected for the hammer efficiency based on the equation below:

$$N_{60} = \frac{N.\eta_H.\eta_B.\eta_S.\eta_R}{60} \qquad \text{(Equation 1)}$$

Where:

N	SPT blows for the 300mm, N field
η_H	Hammer Efficiency = 80%
η_B	Correction for Borehole Diameter, equals to 1
η_S	Sampler Correction, equals to 1
η_R	Correction for Rod length, varies with depth.

The standard penetration tests result and corrections are presented in **Appendix D**.

4. LABORATORY TESTING

4.1. General

Upon completion of the site works, laboratory testing programs were prepared in accordance with the project specifications and the approved Bill of Quantities. Afterwards, the testing programs were provided to the laboratory along with the selected samples. All necessary geotechnical laboratory testing was carried out on selected soil, rock and groundwater samples recovered from the boreholes in order to determine the physical, chemical and strength properties of the ground materials. The scope of laboratory testing with the used standard test methods are summarized in **Table 2** below.

Table 2: List of Laboratory Tests

Type	Test	Standard Test Method	Qty.
Soil	Sieve Analysis	ASTM D6913, D1140, D2216, D2487, & D3282	31
	Moisture Content	ASTM D7263	31
	Liquid Limit & Plastic Limits	ASTM D-4318	31
Rock	Unconfined Compressive Strength of Intact Rock	ASTM D7012 - 14, Method C	9
	Unconfined Compressive Strength and Elastic Moduli	ASTM D7012-14 Method C	-
	Point Load Strength Index of Rock	ASTM D5731	26
Chemical	pH	BS1377 Part 3 Clause 9.5	9
	Chloride	AASHTO 291-94	9
	Sulfate	AASHTO 290-95	9
	Organic matter	ASTM D2974 – 14	9
	Total dissolved solids of water	ASTM D5907	9

The completed laboratory tests result along with their summaries are presented in **Appendix E.**

5. REGIONAL GEOLOGY

5.1. General

Saudi Arabia is underlain by the Precambrian igneous and metamorphic rocks of the Proterozoic Arabian Craton. There is up to 5.5 kilometers of sedimentary rocks from the Cambrian through the Pliocene that is accumulated.

The area of investigation is located on the South West part of KSA, as shown in the figure below. Based on the geological map, the subsurface is mainly composed of coastal-plain surficial deposits consisting of a mixture of gravel, sand, silt and clay. A general geological map of the project area is presented in the figure below**.**

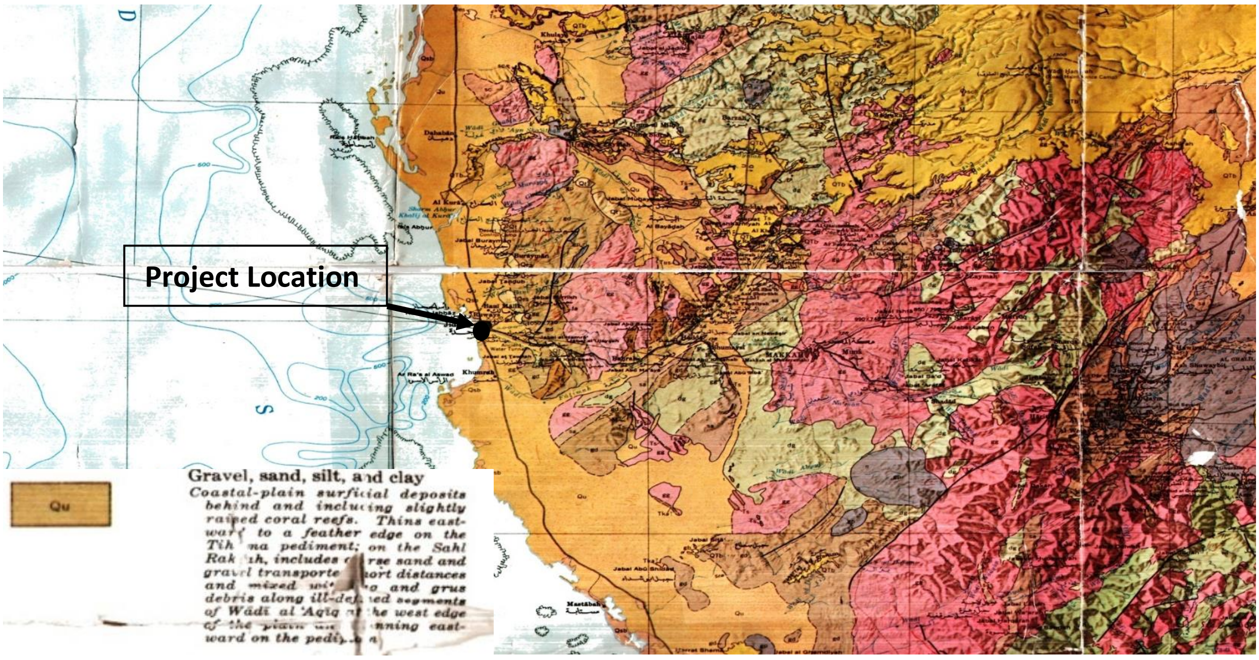
Project Location
Qu
Gravel, sand, silt, and clay
Coastal-plain surficial deposits behind and including slightly raised coral reefs. Thins eastward to a feather edge on the Tih na pediment; on the Sahl Rak ih, includes c rse sand and gravel transporte ort distances and mixed wit o and grus debris along ill-def ied segments of Wādī al 'Aqiq at he west edge of the plain nning eastward on the pedi n
Khumrah
Ar Ra's al Aswad

Figure 3: Geological Map of the Project Location

6. GROUND MODEL

6.1. General

The information obtained from field works and laboratory testing indicates that the subsurface stratigraphy generally consists of two (02) geologic units. These are briefly described below:

Backfill Material - BF (1a / 1b): The topmost layer encountered in all boreholes consists of heterogeneous layer of backfill material composed of a mixture of silty sand and completely to highly weathered Andesite/Rockfill. This layer extends to a depth varying between 0.25m and 27.50m bEGL which corresponds to an elevation of +2.75m and -24.50m MSL. This layer was subdivided into two layers to reflect the changes in SPT's.

Quaternary Deposits – QD (1c): Following the fill material are quaternary deposits composed of Silty Sand/ Sandy Silt and Coral Limestone extending until the end of the borehole exploratory depth. The Limestone within this formation was described as weak beige to light brown, moderately to highly weathered.

The idealized surface profile will be divided into 2 design profiles, summarized in the table below.

Design Profile 1: BH-02, BH03, BH-05, BH08 and BH-09
Design Profile 2: BH-01, BH-04, BH-06 and BH-07.

Table 3: Sub-surface Profile for DP-1

Layer No.	Unit Description	Top Depth [m bEGL]	Bot. Depth [m bEGL]	Top Elevation [m EGM]	Bot. Elevation [m EGM]	Layer Thickness [m]
1a	BF-1	EGL	5.0	EGL	-2.0	5.0
1b	BF-2	5.0	11.0	-2.0	-8.0	6.0
1c	QD	11.0	Und*	-8.0	Und*	Und*

*Undetermined

Table 4: Sub-surface Profile for DP-2

Layer No.	Unit Description	Top Depth [m bEGL]	Bot. Depth [m bEGL]	Top Elevation [m EGM]	Bot. Elevation [m EGM]	Layer Thickness [m]
1a	BF-1	EGL	11.0	EGL	-8.0	11.0
1b	BF-2	11.0	25.0	-8.0	-22.0	14.0
1c	QD	25.0	Und*	-22.0	Und*	Und*

*Undetermined

A summary of the core recoveries is presented in **Appendix F**. A summary of in situ and laboratory tests is presented below.

Table 5: Summary of Lab Test Results for the Soil and Rock Layers

Test	Unit	No. of Tests	Min.	Max.	Average	Standard Deviation
1a / 1b – Backfill Material						
N_{60}	Blows/75mm	97	5.00	50.00	35.15	17.00
Gravel	%	14	0.00	13.00	2.79	4.02

Test	Unit	No. of Tests	Min.	Max.	Average	Standard Deviation
Sand	%	14	75.00	95.00	88.86	5.02
Fines	%	14	5.00	15.00	8.36	3.13
LL	%	17	NP			
PL	%	17				
PI	%	17				
Moisture Content	%	14	3.00	23.00	9.43	6.43
UCS	MPa	15	1.38	12.90	8.21	4.09
PLI	MPa	5	5.50	117.00	68.56	46.98
TCR	%	100	10.00	100.00	41.15	24.58
SCR	%	100	0.00	66.00	11.56	17.20
RQD	%	100	0.00	35.00	4.68	8.94
1c – Quaternary Deposits						
N60	Blows/75mm	78	5.00	50.00	28.01	12.05
Gravel	%	17	0.00	18.00	4.88	6.05
Sand	%	17	5.00	93.00	59.53	31.06
Fines	%	17	2.00	94.00	35.65	31.35
LL	%	17	NP			
PL	%	17				
PI	%	17				
Moisture Content	%	17	4.00	25.00	13.71	7.14
UCS	MPa	11	0.08	3.26	1.10	0.97
PLI	MPa	4	0.80	2.70	1.63	0.93
TCR	%	18	16.00	100.00	52.98	25.22
SCR	%	18	0.00	96.00	39.98	29.29
RQD	%	17	0.00	58.00	13.94	17.06

6.2. Characteristic and Design Values

In accordance with Eurocode 7 Geotechnical Design-General Rules (EN 1997-1), the characteristic values will be at 95% level of confidence for a data collected from test results.

- $X_{Design} = \bar{x} - 1.96 \times \frac{\sigma}{\sqrt{n}}$ (Equation 2)

Where:

- $\bar{x}$ = Average Value
- σ = Standard Deviation
- N = Number of Data Points

However, the design value will be taken as the minimum between the values computed using Equation 2 and the following:

- $X_{Design} = \bar{x} - 0.5 \times \sigma$ (Equation 3)

Using the above methods, the design value of each parameter was derived.

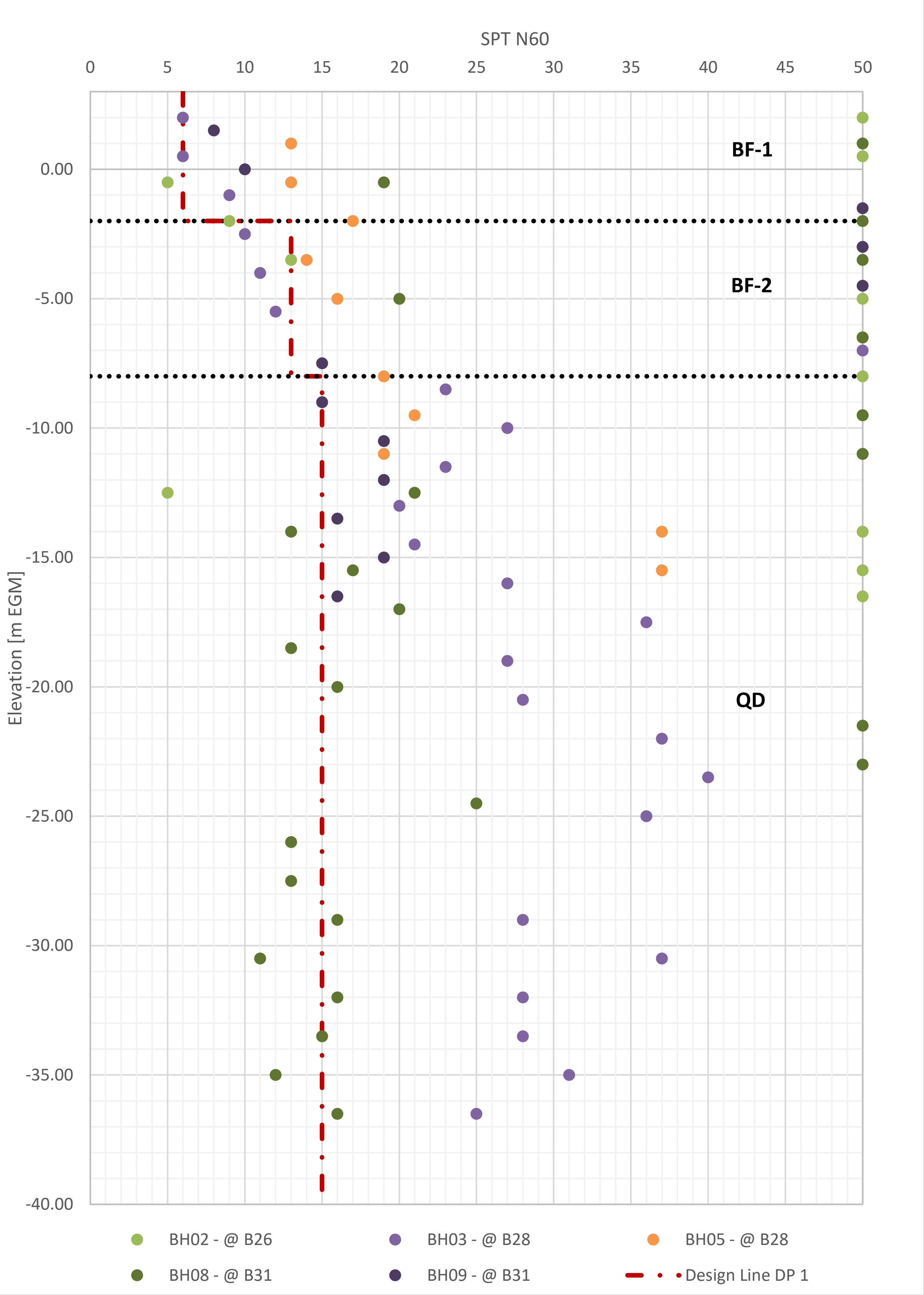

Figure 4: SPT N_{60} Plot and Design Line – DP-1

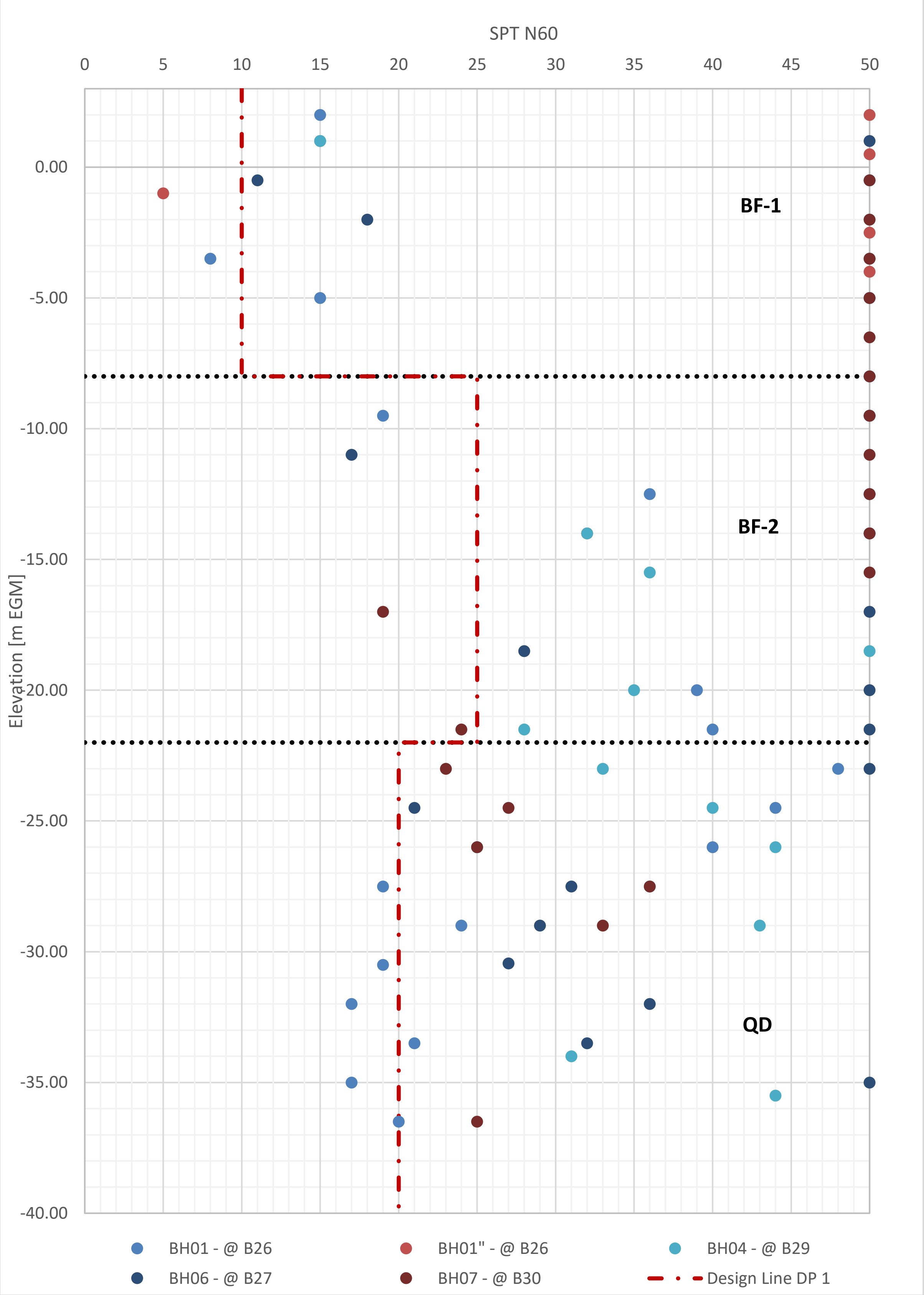

Figure 5: SPT N_{60} Plot and Design Line – DP-2

6.3. Strength and Stiffness Parameters

The strength and stiffness parameters were determined based on the in-situ and laboratory test results, the reported SPT results and the recommendations provided in CIRIA 143. The design parameters of the strata are presented in the below table, and are valid only for foundation design. The geo-mechanical parameters for the top-soil are calculated below:

- c [kPa] : Undrained Cohesion for Sands, considered Zero
- ϕ [degrees]: Friction angle For Sands, $27.1+0.3N_{60}-0.00054N_{60}^2$, Peck (1974) Limited to 38 degrees
- E'[MPa] : Drained Elastic Modulus for Sands 1.2 N, Burland & Burbidge (1985)

Based on the above, the parameters of the BF and QD layers for each profile are illustrated in the tables below.

Table 6: Geo-mechanical Parameters for DP-1

Unit Description	N_{des}	ɣ kN/m³	c [kPa]	ϕ [deg]	E' [MPa]	ν	K_0	k_a	k_p
BF-1	6	17.0	-	29.0	7.2	0.3	0.52	0.35	2.87
BF-2	13	17.5	-	31.0	15.6	0.3	0.49	0.32	3.11
QD	15	17.5	-	31.5	18.0	0.3	0.48	0.31	3.18

Table 7: Geo-mechanical Parameters for DP-2

Unit Description	N_{des}	ɣ kN/m³	c [kPa]	ϕ [deg]	E' [MPa]	ν	K_0	k_a	k_p
BF-1	10	17.0	-	30.0	12.0	0.3	0.50	0.33	3.00
BF-2	25	17.5	-	34.5	30.0	0.3	0.44	0.28	3.57
QD	20	17.5	-	33.0	24.0	0.3	0.46	0.30	3.37

6.4. Ground Water

The groundwater table level was encountered at various depths ranging between 2.00m and 2.50m bEGL, which corresponds to +0.50m and +1.00m MSL as detected within the exploratory depth at the locations of the drilled boreholes. Nevertheless, it is important to note that the groundwater table in the project area may be subject to seasonal and tidal variations. Given the proximity of the site to the sea, it is recommended to use the Highest astronomical tide (HAT) as the design groundwater level for temporary structures.

6.5. Karst Features / Cavities

Open karst features/ cavities were not encountered within the drilled depths at the time of the investigation. Nevertheless, it should be noted that cavities are unlikely to be encountered within the project site given the nature of the ground conditions.

7. FOUNDATION ANALYSIS

7.1. Bearing Capacity Criterion for Shallow Foundations

The ultimate bearing capacity of a foundation can be calculated using the recommendations provided in Meyerhof (1956) and Meyerhof (1963) and is presented below. Correction for GWT are in accordance with FHWA-SA-02-054.

$$\mathrm{q_u} = \mathrm{c}' N_c F_{cs} F_{cd} F_{ci} + q N_q F_{qs} F_{qd} F_{qi} C_{wq} + 0.5\gamma' B N_\gamma F_{\gamma s} F_{\gamma d} F_{\gamma i} C_{w\gamma} \qquad \text{(Equation 4)}$$

Where:

- q_u =Ultimate bearing capacity (kPa
- c'= cohesion of soil (kPa)
- q= effective stress at the level of the bottom of foundation (kPa)
- B= Foundation width (m)
- $\mathrm{F_{cs}F_{qs}F_{\gamma s}}$ = Shape factors
- $\mathrm{F_{cd}F_{qd}F_{\gamma d}}$ =Depth factor
- $\mathrm{F_{ci}F_{qi}F_{\gamma i}}$ = Load inclination factor
- γ = unit weight of soil (kN/m^3)
- N_c, N_q, N_γ= Bearing capacity factors
- $C_{w\gamma} = 0.5 + 0.5\ (D_w / (1.5B_f + D_f)) \leq 1.0$ → Correction Factor for GWT
- $C_{wq} = 0.5 + 0.5\ (D_w/D_f)$ → Correction Factor for GWT

In order to determine the allowable bearing capacity a Factor of Safety 3 will be used. The allowable bearing capacity can be calculated as:

$$\mathrm{q_a} = \frac{q_u}{FoS} \qquad \text{(Equation 5)}$$

Using the above and the drawings provided by the client, an extract of which is provided in the figure below, the allowable bearing capacity (from ULS shear failure) will be around **q_{all} = 450kPa**. The above is valid for the final stage / service stage of the wall. Intermediate construction stages were not factored in.

It should be noted that the above does not incorporate the effect of the settlements. Settlement calculations should be carried out by others.

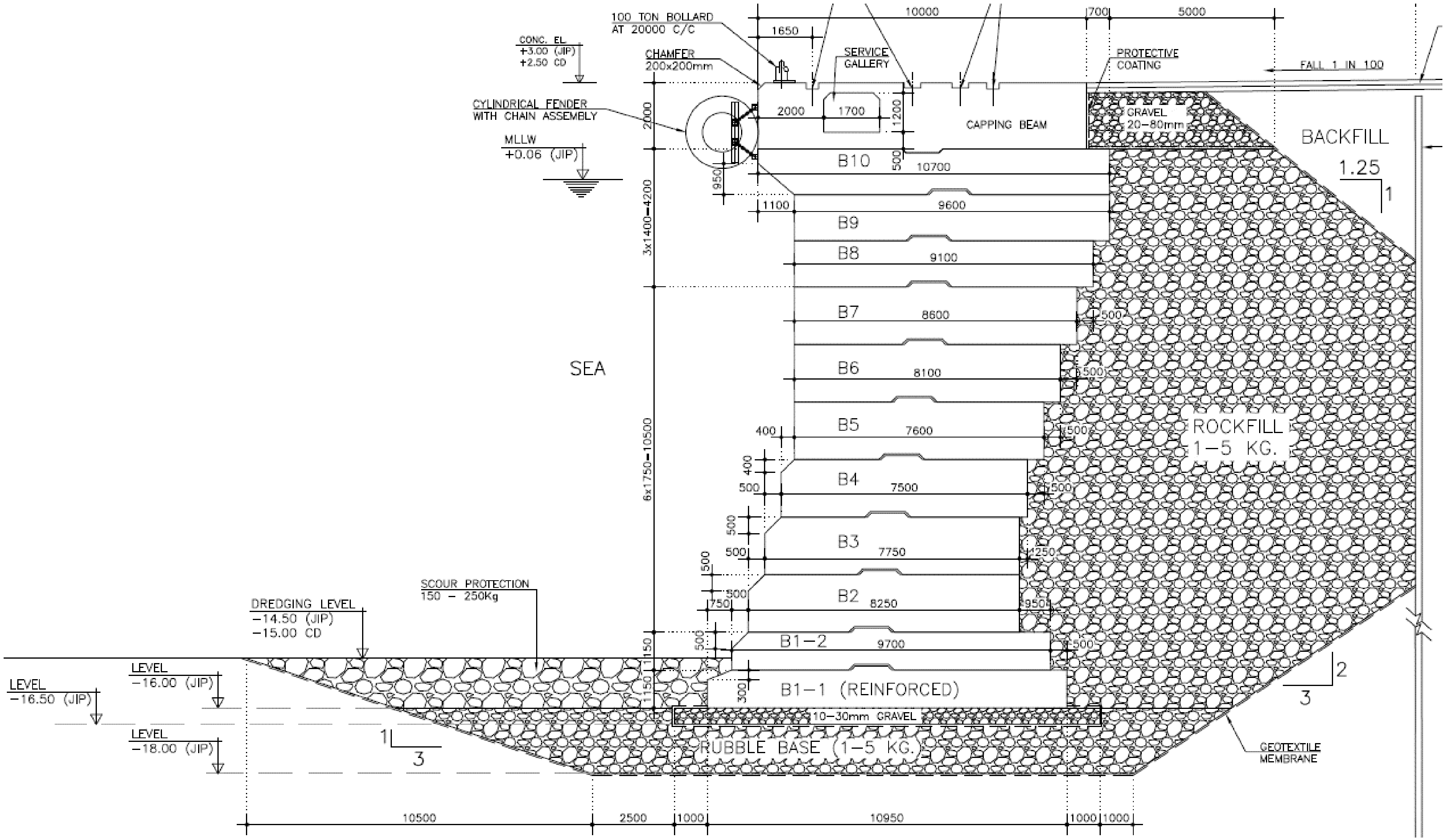
100 TON BOLLARD AT 20000 C/C
CONC. EL. +3.00 (JIP) +2.50 CD
CHAMFER 200x200mm
CYLINDRICAL FENDER WITH CHAIN ASSEMBLY
MLLW +0.06 (JIP)
1650
10000
700
5000
SERVICE GALLERY
PROTECTIVE COATING
FALL 1 IN 100
2000
1700
1200
CAPPING BEAM
GRAVEL 20–80mm
BACKFILL
1.25
1
2000
500
B10
10700
950
1100
9600
B9
B8
9100
3x1400=4200
B7
8600
500
B6
8100
500
SEA
B5
7600
400
500
ROCKFILL 1–5 KG.
400
500
B4
7500
500
6x1750=10500
500
500
B3
7750
1250
1500
500
750
B2
8250
950
SCOUR PROTECTION 150 – 250Kg
DREDGING LEVEL −14.50 (JIP) −15.00 CD
500
B1–2
9700
500
1150
1150
300
B1–1 (REINFORCED)
2
3
LEVEL −16.00 (JIP)
LEVEL −16.50 (JIP)
10–30mm GRAVEL
LEVEL −18.00 (JIP)
1
3
RUBBLE BASE (1–5 KG.)
GEOTEXTILE MEMBRANE
10500
2500
1000
10950
1000
1000

Figure 6: New Quay Wall Typical Section

8. RECOMMENDATIONS & CONCLUSIONS

8.1. Shallow Foundations

The allowable bearing capacities for a quay wall supported on a (1-5kg) rubble base at an elevation of -16.5m CD was calculated as 450kPa. The same is valid for the final stage / service stage of the wall. Intermediate construction stages were not factored in. It should be also noted that the above does not incorporate the effect of the settlements. Settlement calculations should be carried out by others. Hence the above bearing capacity is calculated from the ULS Shear Failure.

8.2. Shoring System General Recommendation

The project will involve the construction of a new quay wall having a design depth of 16.0m. The same is intended to replace the existing quay wall which has a design depth of 11.0-12.0m. In order to construct the new Quay wall, a shoring system should be installed to allow for the removal of the existing quay wall and the installation of a new one. Accordingly, excavations in the range of 18.0m are anticipated.

The findings from the boreholes indicate the presence of a layer of medium dense to very dense rock fill underlain by layers of loose to medium dense silty sands.

Given the encountered ground conditions, the groundwater table and the anticipated excavation depths which will be around 18.0m, a secant pile wall is recommended to be used. The same can be supported at the top by a dead-man anchor or by tie rods to limit displacements of the shoring system.

The design and construction of the shoring system should be carried out by a competent geotechnical specialist.

8.3. Protection against Concrete Deterioration

The maximum sulfate content reported as (SO4) was 0.27% (1370 mg/L). The maximum chloride content reported as (Cl) was 0.45%. The pH value is 8.6.

In accordance with Table 19.3.1.1 of ACI318-R-14, the sulfate exposure class will be S2, and a chloride exposure class of (C2) is considered representative in for the sub-surface concrete elements. Referring to Table 19.3.2.1 of ACI-R318-14 and MOT Chapter 5 and given the exposure classes set out above, the following criteria should be met:

- Cement Type:
    - According to ASTM C150: Type: V
    - According to ASTM C595: Type: IP, IS, or IT with (MS) designation
    - According to ASTM C1157: Type: HS
- Maximum w/cm = 0.45
- Minimum f'_c = 4,500 psi

- No restriction for Calcium Chloride Admixture
- Maximum water-soluble chloride = 0.15% for non-pre-stressed concrete &
  = 0.06% for pre-stressed concrete
- Concrete cover = 3 inches (Table 20.5.1.3.1 – ACI 318-19)

It is highly stressed that the concrete testing program should be conducted in order to comply with the project specifications and local norms and standards to check the durability of the concrete (i.e. Chloride migration coefficient, water absorption of hardened concrete, water permeability of hardened concrete, initial surface absorption of hardened concrete [ISAT], electrical indication of concrete's ability to resist chloride ion penetration [RCP], etc…)

Furthermore, waterproofing consisting of bituminous paint shall be used for all subsurface structures.

8.4. Seismic Parameters

The seismic parameters can be extracted from the recommendations provided in ASCE07-10, IBC2012 and SCB 301 Chapter 20. Referring to Table 20.3.1 of ASCE7-10 (an extract of which is presented in the figure below) and knowing that the SPT's are 50. The following could be concluded:

- Site Class = Class D

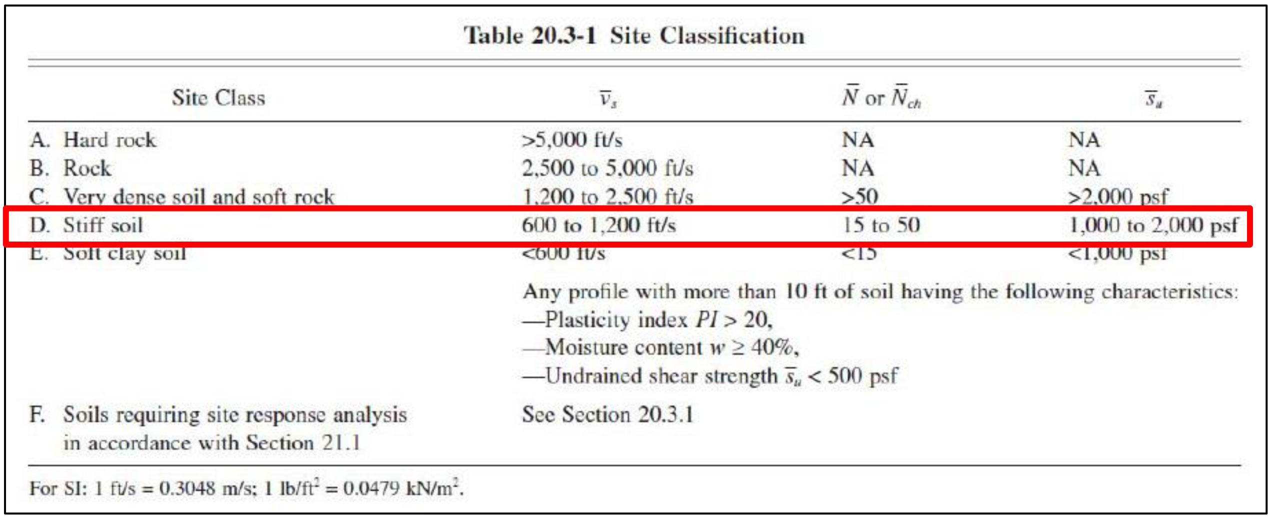

Table 20.3-1 Site Classification

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard rock	>5,000 ft/s	NA	NA
B. Rock	2,500 to 5,000 ft/s	NA	NA
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the following characteristics: —Plasticity index $PI > 20$, —Moisture content $w \geq 40\%$, —Undrained shear strength $\bar{s}_u < 500$ psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1 ft/s = 0.3048 m/s; 1 lb/ft^2 = 0.0479 kN/m^2.

Figure 7: Extract from ASCE7-10 Chapter 20

9. GENERAL NOTES

This geotechnical engineering report has been prepared in accordance with generally accepted geotechnical and foundation practices. No other warranty, expressed or implied, is made. Moreover, the above findings are applicable only for the “Jeddah Port Project” in KSA.

The findings provided in this report are based on the results of the field investigations, borehole drilling/in-situ testing, laboratory testing, data delivered from the Client at the time of the study, and geotechnical/materials engineering literature. **ACTS** holds no responsibility for possible variations in the subsurface conditions not revealed by the boreholes and thus, not accounted for in this report. Should any variation or undesirable conditions be encountered during construction works or later stages, **ACTS** should be notified in order to review the findings mentioned herein.

10. REFERENCES & DEFINITIONS

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Definitions

- b EGL = below Existing Ground Level
- The stratigraphic units adopted in this report are as follows:

Appendix A – Borehole Logs

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BOREHOLE LOG

Borehole No:	BH01 - @ B26	**Date Started:**	21-09-22	**Depth of Casing:**	9.50
Borehole Depth:	40m	**Date Finished:**	01-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 1 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 01-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates** **North (Y-m):**	2373764.36
Checked by/date:	MAS- 17-10-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517135.72
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.50	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
0.5	C-1		48	35	35	NI				Presence of CONCRETE.	2.00	1.00	▨
1.0	SPT-1						2,2/3,4,4,4	15		Medium dense, brown, Well Graded SAND with Silt (SW-SM). (BACKFILL MATERIALS)	1.55	1.45	■
1.5	C-2		86	0	0	NI				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)	1.00	2.00	■
	C-3		100	0	0	NI							
2.0	SPT-2						2,4/3,3,4,3	13	2.50 m 10-03-22 ▼	Medium dense, brown, Well Graded SAND with Silt (SW-SM). (BACKFILL MATERIALS)	0.55	2.45	■
2.5	C-4		100	0	0	NI				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)			■
3.0	C-5		100	0	0	NI					-0.50	3.50	
3.5	SPT-3						50,*/*,*,*,*	>50		No recovery	-0.55	3.55	
4.0 4.5 5.0 5.5 6.0	NO SAMPLE-1									No recovery	-3.50	6.50	
6.5	SPT-4						1,2/2,2,1,1	6		Loose, brown, Well Graded SAND with Silt (SW-SM). (BACKFILL MATERIALS)	-3.95	6.95	■
7.0 7.5	C-6		18	0	0	NI				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)	-5.00	8.00	■
8.0	SPT-5						3,3/2,4,3,2	11		Medium dense, brown, Well Graded Sand with Silt (SW-SM). (BACKFILL MATERIALS)	-5.45	8.45	■
8.5	C-7		73	0	0	NI				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)	-6.50	9.50	■
9.0	C-8		80	0	0	NI							
9.5			67	57	17	1.3				Medium strong to weak, grey medium grained ANDESITE, fractures (dip = 10°-20°), rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)			■

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

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BOREHOLE LOG

Borehole No:	BH01 - @ B26	**Date Started:**	21-09-22	**Depth of Casing:**	9.50
Borehole Depth:	40m	**Date Finished:**	01-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 2 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 01-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates** North (Y-m):	2373764.36
Checked by/date:	MAS- 17-10-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517135.72
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.50	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
10.5	C-9		67	57	17	1.3				Medium strong to weak, grey medium grained ANDESITE, fractures (dip = 10°-20°), rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS) *(continued)*	-8.00	11.00	■
11.0 11.5 12.0	C-10		40	35	35	1.9				Medium strong, beige to light brown, LIMESTONE with voids. Moderately weathered, fractures (dip = 10°-20°), slightly rough to rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)	-9.50	12.50	■
12.5	SPT-6						2,2/3,4,4,3	14		Medium dense, light brown, Poorly Graded Sand with Silt (SP-SM). (BACKFILL MATERIALS)	-9.95	12.95	■
13.0 13.5	C-11		10	0	0	NI				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)	-11.00	14.00	■
14.0	B-12									Resudial soil recovered as light brown silty fine to medium SAND of sedimentary origin. (BACKFILL MATERIALS)	-11.30	14.30	■
14.5	C-12		43	15	15	1				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)			■
15.0	C-13		40	40	0	NI					-12.50	15.50	■
15.5	SPT-7						4,3/5,6,7,9	27		Medium dense, light brown, gravelly silty, medium to coarse SAND. Gravels are fine to medium, rounded to sub-rounded and of sedimentary origin. (BACKFILL MATERIALS)	-12.95	15.95	■
16.0 16.5	C-14		43	27	0	NI				Weak, beige to light brown, LIMESTONE with voids. Moderately to h weathered, fractures (dip = 30°-40°), slightly rough to rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)	-14.00	17.00	■
17.0	SPT-8						50,*/*,*,*,*	>50		Very dense, light brown, gravelly silty medium to coarse SAND. Gravels are fine, rounded to sub-rounded and of sedimentary origin. (BACKFILL MATERIALS)	-14.11	17.11	■
17.5 18.0	C-15		51	47	29	2				Medium strong, beige to light brown, LIMESTONE with voids. Moderately weathered, fractures (dip = 20°-30°), slightly rough to rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)	-15.50	18.50	■
18.5 19.0 19.5	C-16		67	0	0	NI				Very weak, grey medium grained ANDESITE with gravels of limestone, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)			■

Remarks:

Legend:

SPT: Standard Penetration Test
C : Core Sample
SPT(C) : SPT(Cone)

B : Bulk Disturbed Sample
U : Undisturbed Sample
NI : Non Intact Core

TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation

GWT: Ground Water Table
FI : Fracture Index
FR : Flush Return

BOREHOLE LOG

Borehole No:	BH01 - @ B26	**Date Started:**	21-09-22	**Depth of Casing:**	9.50
Borehole Depth:	40m	**Date Finished:**	01-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 3 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 01-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**North (Y-m):**	2373764.36
Checked by/date:	MAS- 17-10-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517135.72
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.50	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
20.5 21.0	C-17		67	0	0	NI				Very weak, grey medium grained ANDESITE with gravels of limestone, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS) *(continued)*	-20.00	23.00	
21.5	C-18		90	0	0	NI							
22.0 22.5	C-19		50	0	0	NI							
23.0	SPT-9						3,4/6,6,8,9	29		Medium dense, light brown, gravelly silty medium to coarse SAND. Gravels are fine to medium, rounded to sub-rounded and of sedimentary origin. (BACKFILL MATERIALS)	-20.45	23.45	
23.5 24.0	C-20		29	0	0	NI				Medium dense, light brown, slightly cobbly, gravelly, silty fine to medium SAND, Gravels and cobbles are sub-angular to sub-rounded in shape and of of igneous origin. (BACKFILL MATERIALS)	-21.50	24.50	
24.5	SPT-10						6,6/5,7,8,10	30		Medium dense, dark brown, gravelly silty medium SAND. (BACKFILL MATERIALS)	-21.95	24.95	
25.0 25.5	C-21		29	0	0	NI				Very weak, beige to light brown, LIMESTONE with voids. Completely weathered and not intact. (BACKFILL MATERIALS)	-23.00	26.00	
26.0	SPT-11						5,5/7,8,10,11	36		Dense, dark brown, Well Graded SAND with Silt(SW-SM). (QUATERNARY DEPOSITS)			
26.5 27.0	B-2												
27.5	SPT-12						7,7/6,8,9,10	33		[27.5m - 27.95m]:Dense, dark brown, Well Graded SAND with Silt(SW-SM).			
28.0 28.5	B-3												
29.0	SPT-13						5,6/3,9,8,10	30		[29m - 29.45m]:Medium dense, dark brown, Well Graded SAND with Silt(SW-SM).			
29.5													

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS Build on our credentials	**BOREHOLE LOG**	**Borehole No:** BH01 - @ B26	**Date Started:** 21-09-22	**Depth of Casing:** 9.50	
		Borehole Depth: 40m	**Date Finished:** 01-10-22	**ID Dia. of Casing:** 127	
	Project Name: Jeddah Port Project			**Borehole Log Scale** 1:50	
Sheet 4 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah		**Client Name:** PC Marine	
Logged by/date: AZ- 01-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2373764.36	
Checked by/date: MAS- 17-10-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517135.72	
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00	
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.50	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008	

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	B-4									Dense, dark brown, Well Graded SAND with Silt(SW-SM). (QUATERNARY DEPOSITS) *(continued)*			
30.5	SPT-14						3,3/2,3,4,5	14		[30.5m - 30.95m]:Medium dense, dark brown, Well Graded SAND with Silt(SW-SM).			
31.0 31.5	B-5												
32.0	SPT-15						2,2/3,4,5,6	18		[32m - 32.45m]:Medium dense, dark brown, Well Graded SAND with Silt(SW-SM).			
32.5 33.0	B-6												
33.5	SPT-16						3,3/2,3,4,5	14		[33.5m - 33.95m]:Medium dense, dark brown, Well Graded SAND with Silt(SW-SM).			
34.0 34.5	B-7												
35.0	SPT-17						3,3/2,4,3,4	13		[35m - 35.45m]:Medium dense, dark brown, Well Graded SAND with Silt(SW-SM).			
35.5 36.0	B-8												
36.5	SPT-18						2,2/3,4,4,5	16		[36.5m - 36.95m]:Medium dense, dark brown, Well Graded SAND with Silt(SW-SM).			
37.0 37.5	B-9												
38.0	SPT-19						2,3/3,2,4,4	13		[38m - 38.45m]:Medium dense, dark brown, Well Graded SAND with Silt(SW-SM).			
38.5 39.0	B-10												
39.5	SPT-20						2,2/7,2,2,4	15		[39.5m - 39.95m]:Medium dense, dark brown, Well Graded SAND with Silt(SW-SM).	-37.00	40.00	

END OF BOREHOLE @ 40.00m

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

BOREHOLE LOG

Borehole No: BH01" - @ B26	**Date Started:** 14-09-22	**Depth of Casing:** 4.50	
Borehole Depth: 18.5m	**Date Finished:** 21-09-22	**ID Dia. of Casing:** 127	
Project Name: Jeddah Port Project		**Borehole Log Scale** 1:50	
Sheet 1 of 2	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah	**Client Name:** PC Marine

Logged by/date: AZ- 14-09-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):**	2373729.55
Checked by/date: MAS- 14-11-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):**	517078.55
Drilled by: Adnan	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):**	3.00
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):**		**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
0.5	C-1		23	11	0	NI				Presence of CONCRETE.	2.00	1.00	▨
1.0	SPT-1						15,21/50,*,*,*	>50		Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS)	-1.00	4.00	■
1.5 2.0	C-2		25	0	0	NI							
2.5	SPT-2						6,50/*,*,*,*	>50					
3.0 3.5	C-3		15	0	0	NI							
4.0	SPT-3						1,1/1,1,1,1	4		Loose, brown, silty fine to medium SAND. (BACKFILL MATERIALS)	-1.45	4.45	■
4.5 5.0	C-4		12	0	0	NI				Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS)	-4.40	7.40	■
5.5	SPT-4						8,11/50,*,*,*	>50					
6.0 6.5	C-5		19	0	0	NI							
7.0	SPT-5						5,13/50,*,*,*	>50					
7.5 8.0	C-6		23	14	14	1.3				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)			■
8.5	C-7		100	60	0								
9.0	C-8		88	0	0								
9.5			73	45	0								

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

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BOREHOLE LOG

Borehole No: BH01" - @ B26	**Date Started:** 14-09-22	**Depth of Casing:** 4.50	
Borehole Depth: 18.5m	**Date Finished:** 21-09-22	**ID Dia. of Casing:** 127	
Project Name: Jeddah Port Project		**Borehole Log Scale** 1:50	
Sheet 2 of 2	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah	**Client Name:** PC Marine

Logged by/date: AZ- 14-09-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2373729.55
Checked by/date: MAS- 14-11-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517078.55
Drilled by: Adnan	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):**	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
10.5	C-9		73	45	0	1.3				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS) *(continued)*	-9.50	12.50	
11.0 11.5 12.0	C-10		67	31	20								
12.5	SPT-6						13,50/*,*,*,*	>50		Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS)	-11.00	14.00	
13.0 13.5	C-11		17	0	0	1							
14.0										Medium strong, grey medium grained ANDESITE, fractures (dip = 10°-20°), rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)	-11.25	14.25	
14.5 15.0	C-12		30	25	0					Weak, beige to greish beige fine coarse coral reef LIMESTONE. Completely weathered and not intact. (BACKFILL MATERIALS)	-12.50	15.50	
15.5	SPT-7						50,*/*,*,*,*	>50		Medium strong, light brown to beige LIMESTONE with voids. Moderately weathered, fractures (dip = 20°-40°), slightly rough to rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)	-14.00	17.00	
16.0 16.5	C-13		22	22	18	1.5							
17.0	SPT-8						2,4/5,5,7,7	24		Medium dense, light brown, silty fine to medium SAND. (BACKFILL MATERIALS)	-14.45	17.45	
17.5 18.0	C-14		55	0	0	NI				Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS)	-15.50	18.50	
18.5 19.0 19.5										END OF BOREHOLE @ 18.50m			

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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BOREHOLE LOG

Borehole No: BH02 - @ B26		**Date Started:** 11-09-22		**Depth of Casing:** NIL	
Borehole Depth: 20m		**Date Finished:** 13-09-22		**ID Dia. of Casing:** NIL	
Project Name: Jeddah Port Project				**Borehole Log Scale** 1:50	
Sheet 1 of 2	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah		**Client Name:** PC Marine	
Logged by/date: AZ- 13-09-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):**	2373767.92
Checked by/date: MAS- 24-09-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):**	517141.67
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):**	3.00
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.50	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008	

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	C-1									Presence of CONCRETE top slab.	2.75	0.25	▨
0.5	B-1									Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS)			■
1.0	SPT-1						6,50/*,*,*,*	>50					■
1.5 2.0	B-2								2.50 m 15-09-22 ▼				■
2.5	SPT-2						8,50/*,*,*,*	>50					■
3.0	B-3										-0.15	3.15	■
	C-2									Presence of CONCRETE bottom slab.	-0.50	3.50	▨
3.5	SPT-3						1,2/1,1,1,1	4		Loose, brown, Poorly Graded SAND with Silt (SP-SM). (BACKFILL MATERIALS)			■
4.0 4.5	B-4												■
5.0	SPT-4						1,2/2,2,1,2	7		[5m - 5.45m]:Loose, brown, Poorly Graded SAND with Silt (SP-SM).			■
5.5 6.0	B-5												■
6.5	SPT-5						1,1/2,2,4,2	10		[6.5m - 6.95m]:Medium dense, brown, Poorly Graded SAND with Silt (SP-SM).	-3.95	6.95	■
7.0 7.5	B-6		20	0	0	NI				Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS)	-5.00	8.00	■
8.0	SPT-6						,*/*,*,*,*	>50		No recovery			
8.5 9.0	NO SAMPLE-1												
9.5	SPT-7						,*/*,*,*,*	>50			-6.95	9.95	

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
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BOREHOLE LOG

Borehole No: BH02 - @ B26		**Date Started:** 11-09-22		**Depth of Casing:** NIL	
Borehole Depth: 20m		**Date Finished:** 13-09-22		**ID Dia. of Casing:** NIL	
Project Name: Jeddah Port Project				**Borehole Log Scale** 1:50	
Sheet 2 of 2	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah		**Client Name:** PC Marine	
Logged by/date: AZ- 13-09-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2373767.92	
Checked by/date: MAS- 24-09-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517141.67	
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00	
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.50		**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
			19	0	0	NI				Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS) *(continued)*			■
10.5	B-7		19	0	0	NI					-8.00	11.00	■
11.0	SPT-8						5,50/*,*,*,*	>50		Medium strong, beige to grey fine coarse coral reef LIMESTONE. Moderately to highly weathered, fractures (dip = 10°) are rough, closely spaced and joint surfaces are clean. (QUATERNARY DEPOSITS)			▒
11.5 12.0	C-3		29	22	0	2.1					-9.50	12.50	▒
12.5	SPT-9						7,50/*,*,*,*	>50		Weak, beige to greish beige fine coarse coral reef LIMESTONE. Completely weathered and not intact of sedimentary origin. (QUATERNARY DEPOSITS)			▒
13.0 13.5	C-4		40	15	0	NI					-11.00	14.00	▒
14.0	SPT-10						,*/*,*,*,*	>50		No recovery			
14.5 15.0	NO SAMPLE-2										-12.50	15.50	
15.5	SPT-11						2,1/1,1,1,1	4		Weak, beige fine coarse coral reef LIMESTONE. Completely weathered and not intact of sedimentary origin. (QUATERNARY DEPOSITS)			▒
16.0 16.5	C-5												▒
17.0	SPT-12						13,50/*,*,*,*	>50			-14.13	17.13	▒
17.5 18.0	C-6		39	36	0	2.9				Medium strong, beige to grey fine coarse coral reef LIMESTONE with voids and vugs. Moderately weathered, fractures (dip = 20°) are rough, closely spaced and joint surfaces are clean. (QUATERNARY DEPOSITS)	-15.50	18.50	▒
18.5	SPT-13						10,50/*,*,*,*	>50		Medium strong, beige to grey fine coarse coral reef LIMESTONE with voids and vugs. Moderately weathered, fractures (dip = 20°) are rough, closely spaced and joint surfaces are clean. (QUATERNARY DEPOSITS)			▒
19.0	C-7		44	27	27	2					-16.50	19.50	▒
19.5	SPT-14						7,6/50,*,*,*	>50		Weak, beige fine coarse coral reef LIMESTONE with voids and vugs. Completely weathered and not intact of sedimentary origin. (QUATERNARY DEPOSITS)			▒
	C-8		68	0	0	NI					-17.00	20.00	▒

END OF BOREHOLE @ 20.00m

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

BOREHOLE LOG

Borehole No: BH03 - @ B28	**Date Started:** 06-10-22	**Depth of Casing:** 9.00	
Borehole Depth: 40m	**Date Finished:** 09-10-22	**ID Dia. of Casing:** 127	
Project Name: Jeddah Port Project		**Borehole Log Scale** 1:50	
Sheet 1 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah	**Client Name:** PC Marine

Logged by/date: AZ- 09-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2373328.36
Checked by/date: MAS- 13-10-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517202.45
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.20	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
0.5	C-1		30	15	15					Presence of CONCRETE.	2.00	1.00	▨
1.0	SPT-1						1,2/2,1,1,2	6		Loose, brown, Poorly Graded SAND with Silt (SP-SM). (BACKFILL MATERIALS)			■
1.5 2.0	B-1								2.20 m 10-11-22 ▼				
2.5 3.0	SPT-2						1,2/1,1,2,1	5		[2.5m - 2.95m]:Loose, brown, Poorly Graded SAND with Silt (SP-SM).			
3.5	B-2												
4.0	SPT-3						2,1/1,2,2,2	7		[4m - 4.45m]:Loose, brown, Poorly Graded SAND with Silt (SP-SM).			
4.5 5.0	B-3												
5.5	SPT-4						1,1/1,3,2,2	8		[5.5m - 5.95m]:Loose, brown, Poorly Graded SAND with Silt (SP-SM).			
6.0 6.5	B-4												
7.0	SPT-5						2,2/1,3,3,2	9		[7m - 7.45m]:Loose, brown, Poorly Graded SAND with Silt (SP-SM).			
7.5 8.0	B-5												
8.5	SPT-6						1,1/2,2,2,3	9		[8.5m - 8.95m]:Loose, brown, Poorly Graded SAND with Silt (SP-SM).			
9.0 9.5	B-6										-7.00	10.00	

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
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BOREHOLE LOG

Borehole No: BH03 - @ B28	**Date Started:** 06-10-22	**Depth of Casing:** 9.00	
Borehole Depth: 40m	**Date Finished:** 09-10-22	**ID Dia. of Casing:** 127	
Project Name: Jeddah Port Project		**Borehole Log Scale** 1:50	
Sheet 2 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah	**Client Name:** PC Marine

Logged by/date: AZ- 09-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates** **North (Y-m):** 2373328.36
Checked by/date: MAS- 13-10-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water	**East (X-m):** 517202.45
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A	**Level (m):** 3.00
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.20	**Grid:** WGS 84 UTM 37 **Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	SPT-7						6,50/*,*,*,*	>50		weak, dark grey medium grained ANDESITE. Completely weathered and not intact. (BACKFILL MATERIALS)			■
10.5 11.0	B-7		46.3	46.3	0	NI					-8.50	11.50	■
11.5	SPT-8						3,3/4,4,4,5	17		Medium dense, light grey , Silty SAND (SM). (QUATERNARY DEPOSITS) [11.5m - 11.95m]:Medium dense, light grey , Silty SAND (SM).			⁙
12.0 12.5	B-8												⁙
13.0	SPT-9						2,2/4,4,5,7	20		[13m - 13.45m]:Medium dense, light grey , Silty SAND (SM).			⁙
13.5 14.0	B-9												⁙
14.5	SPT-10						2,2/3,4,4,6	17		[14.5m - 14.95m]:Medium dense, light grey , Silty SAND (SM).			⁙
15.0 15.5	B-10												⁙
16.0	SPT-11						3,3/2,4,4,5	15		[16m - 16.45m]:Medium dense, light grey , Silty SAND (SM).			⁙
16.5 17.0	B-11												⁙
17.5	SPT-12						4,4/3,3,5,5	16		[17.5m - 17.95m]:Medium dense, light grey , Silty SAND (SM).			⁙
18.0 18.5	B-12												⁙
19.0	SPT-13						3,3/4,4,5,7	20		[19m - 19.45m]:Medium dense, light grey , Silty SAND (SM).			⁙
19.5													⁙

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS Build on our credentials	**BOREHOLE LOG**	**Borehole No:** BH03 - @ B28	**Date Started:** 06-10-22	**Depth of Casing:** 9.00	
		Borehole Depth: 40m	**Date Finished:** 09-10-22	**ID Dia. of Casing:** 127	
	Project Name: Jeddah Port Project			**Borehole Log Scale** 1:50	
Sheet 3 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah	**Client Name:** PC Marine		

Logged by/date: AZ- 09-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2373328.36	
Checked by/date: MAS- 13-10-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517202.45	
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00	
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.20	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008	

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	B-13									Medium dense, light grey , Silty SAND (SM). (QUATERNARY DEPOSITS) *(continued)*			
20.5	SPT-14						4,6/6,5,7,9	27		[20.5m - 20.95m]:Medium dense, light grey , Silty SAND (SM).			
21.0													
21.5	B-14												
22.0	SPT-15						4,4/2,4,6,8	20		[22m - 22.45m]:Medium dense, light grey , Silty SAND (SM).			
22.5													
23.0	B-15												
23.5	SPT-16						3,4/3,5,6,7	21		[23.5m - 23.95m]:Medium dense, light grey , Silty SAND (SM).			
24.0													
24.5	B-16												
25.0	SPT-17						4,5/4,6,8,10	28		[25m - 25.45m]:Medium dense, light grey , Silty SAND (SM).			
25.5													
26.0	B-17												
26.5	SPT-18						4,5/5,6,8,11	30		[26.5m - 26.95m]:Medium dense, light grey , Silty SAND (SM).			
27.0													
27.5	B-18												
28.0	SPT-19						5,5/4,6,7,10	27		[28m - 28.45m]:Medium dense, light grey , Silty SAND (SM).	-25.45	28.45	
28.5										Weak, light brown of LIMESTONE . Completely weathered and not intact.			
29.0	C-2		44.4	44.4		NI							
29.5											-26.80	29.80	
			77.3	77.3	34	6.5							

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS Build on our credentials	**BOREHOLE LOG**	**Borehole No:** BH03 - @ B28	**Date Started:** 06-10-22	**Depth of Casing:** 9.00	
		Borehole Depth: 40m	**Date Finished:** 09-10-22	**ID Dia. of Casing:** 127	
	Project Name: Jeddah Port Project			**Borehole Log Scale** 1:50	
Sheet 4 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah		**Client Name:** PC Marine	

Logged by/date: AZ- 09-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2373328.36	
Checked by/date: MAS- 13-10-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517202.45	
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00	
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.20		**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	C-3									Weak, light brown of LIMESTONE . Moderately weathered, fractures (dip = 10° - 15°), slightly rough to rough, closely spaced and joint surfaces are clean. *(continued)*			▨
30.5 31.0 31.5	C-4		77.3	77.3	34	6.5					-29.00	32.00	▨
32.0	SPT-20						3,4/5,5,4,7	21		Medium dense,brown to light grey ,Silty SAND (SM). (QUATERNARY DEPOSITS) [32m - 32.45m]:Medium dense,brown to light grey ,Silty SAND (SM).			⁘
32.5 33.0	B-19												⁘
33.5	SPT-21						5,5/6,7,6,9	28		[33.5m - 33.95m]:Medium dense,brown to light grey ,Silty SAND (SM).			⁘
34.0 34.5	B-20												⁘
35.0	SPT-22						2,3/5,5,4,7	21		[35m - 35.45m]:Medium dense,brown to light grey ,Silty SAND (SM).			⁘
35.5 36.0	B-21												⁘
36.5	SPT-24						4,3/4,5,6,6	21		[36.5m - 36.95m]:Medium dense,brown to light grey ,Silty SAND (SM).			⁘
37.0 37.5	B-22												⁘
38.0	SPT-25						5,4/4,5,6,8	23		[38m - 38.45m]:Medium dense,brown to light grey ,Silty SAND (SM).			⁘
38.5 39.0	B-23												⁘
39.5	SPT-26						3,3/4,4,5,6	19		[39.5m - 39.95m]:Medium dense,brown to light grey ,Silty SAND (SM).	-37.00	40.00	⁘

END OF BOREHOLE @ 40.00m

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
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BOREHOLE LOG

Borehole No:	BH04 - @ B29	**Date Started:**	02-10-22	**Depth of Casing:**	11.00
Borehole Depth:	40m	**Date Finished:**	05-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 1 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 05-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates** North (Y-m):	2373083.71
Checked by/date:	MAS- 13-10-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517228.67
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.30	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
0.5 1.0	C-1		45	40	12					Presence of CONCRETE pieces.	1.50	1.50	
1.5	C-2		64	0	0	NI				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)	1.00	2.00	
2.0	SPT-1						2,2/3,3,3,4	13	2.30 m 10-07-22	Medium dense, brown, Poorly Graded SAND with Silt (SP-SM). (BACKFILL MATERIALS)			
2.5 3.0	B-1										-0.50	3.50	
3.5	SPT-2						6,50/*,*,*,*	>50		Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)			
4.0 4.5	B-2		13	0	0	NI					-2.00	5.00	
5.0	SPT-3						5,50/*,*,*,*	>50		Very dense, brown, gravelly silty medium SAND. Gravels are medium to coarse, angular and of igneous origin (BACKFILL MATERIALS)			
5.5 6.0	B-3										-3.50	6.50	
6.5 7.0	C-3		49	6	0	NI				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)			
7.5	C-4												
8.0 8.5 9.0	C-5		43	0	0	NI							
9.5			67	20	0	NI							

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
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BOREHOLE LOG

Borehole No:	BH04 - @ B29	**Date Started:**	02-10-22	**Depth of Casing:**	11.00
Borehole Depth:	40m	**Date Finished:**	05-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 2 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 05-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**North (Y-m):**	2373083.71
Checked by/date:	MAS- 13-10-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517228.67
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.30	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
10.5	C-6		67	20	0	NI				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS) *(continued)*			
11.0	SPT-4						7,50/*,*,*,*	>50					
11.5 12.0	C-7		16	0	0	NI							
12.5	SPT-5						6,50/*,*,*,*	>50					
13.0 13.5	C-8		15	7	0	NI					-11.00	14.00	
14.0 14.5 15.0	C-9		66	66	31	4				Medium strong, light brown to beige LIMESTONE with voids. Moderately weathered, fractures (dip = 20°-40°), slightly rough to rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)			
15.5 16.0 16.5	C-10		57	51	24	3.3				 Medium strong, grey medium grained ANDESITE, fractures (dip = 10°-20°), rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)	-13.60 -14.00	16.60 17.00	
17.0	SPT-6						2,4/4,6,6,8	24		Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS) [17.45m - 17.6m]:Very weak, light brown cobble of LIMESTONE			
17.5 18.0	C-11		24	11	0	NI					-15.50	18.50	
18.5	SPT-7						3,4/6,5,7,9	27		Very weak, light brown LIMESTONE. Completely weathered and joint surfaces are clean (BACKFILL MATERIALS)			
19.0 19.5	C-12		11	6	0	NI							

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

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BOREHOLE LOG

Borehole No:	BH04 - @ B29	**Date Started:**	02-10-22	**Depth of Casing:**	11.00
Borehole Depth:	40m	**Date Finished:**	05-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 3 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 05-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates** North (Y-m):	2373083.71
Checked by/date:	MAS- 13-10-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517228.67
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.30	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
20.5 21.0	C-13		50	12	12	NI				Medium strong, grey medium grained ANDESITE, fractures (dip = 10°-20°), rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS) Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)	-17.10 -17.30	20.10 20.30	■
21.5	SPT-8						6,50/*,*,*,*	>50					■
22.0 22.5	C-14		49	11	0								■
23.0	SPT-9						3,3/5,5,7,9	26		Medium dense, brown, Well Graded SAND with Silt(SW-SM). (BACKFILL MATERIALS)	-20.00	23.00	■
23.5 24.0	B-4												■
24.5	SPT-10						4,4/5,3,6,7	21		Medium dense, brown, Well Graded SAND with Silt(SW-SM). (BACKFILL MATERIALS)	-21.50	24.50	■
25.0 25.5	B-5												■
26.0	SPT-11						4,4/5,5,7,8	25		Very stiff, grey SILT with Sand (ML). (QUATERNARY DEPOSITS)	-23.00	26.00	×
26.5 27.0	B-6												×
27.5	SPT-12						4,5/7,5,8,10	30		[27.5m - 27.95m]:Very stiff, grey SILT with Sand (ML)			×
28.0 28.5	B-7												×
29.0	SPT-13						3,5/6,8,9,10	33		[29m - 29.45m]:Very stiff, grey SILT with Sand (ML)			×
29.5													×

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES Build on our credentials	**BOREHOLE LOG**	**Borehole No:** BH04 - @ B29	**Date Started:** 02-10-22	**Depth of Casing:** 11.00	
		Borehole Depth: 40m	**Date Finished:** 05-10-22	**ID Dia. of Casing:** 127	
	Project Name: Jeddah Port Project			**Borehole Log Scale** 1:50	
Sheet 4 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah		**Client Name:** PC Marine	

Logged by/date: AZ- 05-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2373083.71	
Checked by/date: MAS- 13-10-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517228.67	
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00	
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.30		**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	B-8									Very stiff, grey SILT with Sand (ML). (QUATERNARY DEPOSITS) *(continued)*	-27.50	30.50	
30.5	SPT-14						4,4/5,6,8,8	27		Very stiff, brown, CLAY (QUATERNARY DEPOSITS)			
31.0 31.5	B-9												
32.0	SPT-15						4,4/6,7,8,11	32			-29.45	32.45	
32.5 33.0 33.5	B-10		18	18	0					Medium strong, light brown to brown, medium grained LIMESTONE with voids. Highly weathered, fractures (dip = 10°-20°), rough, closely spaced and joint surfaces are clean (QUATERNARY DEPOSITS)			
34.0 34.5	C-15		100	95	12	11							
35.0 35.5	C-16		100	96	58	8							
36.0 36.5	C-17		80	80	27	7					-34.00	37.00	
37.0	SPT-16						4,4/4,6,6,7	23		Very stiff, brown Lean CLAY with Sand (CL) (QUATERNARY DEPOSITS)			
37.5 38.0	B-11												
38.5	SPT-17						5,5/6,7,9,11	33		[38.5m - 38.95m]:Hard, brown Lean CLAY with Sand (CL)			
39.0 39.5	B-11										-37.00	40.00	

END OF BOREHOLE @ 40.00m

Remarks:

Legend:

SPT: Standard Penetration Test
C : Core Sample
SPT(C) : SPT(Cone)
B : Bulk Disturbed Sample
U : Undisturbed Sample
NI : Non Intact Core
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
GWT: Ground Water Table
FI : Fracture Index
FR : Flush Return

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BOREHOLE LOG

Borehole No: BH05 - @ B28	**Date Started:** 10-10-22	**Depth of Casing:** 10.00	
Borehole Depth: 20m	**Date Finished:** 12-10-22	**ID Dia. of Casing:** 127	
Project Name: Jeddah Port Project		**Borehole Log Scale** 1:50	
Sheet 1 of 2	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah	**Client Name:** PC Marine

Logged by/date: AZ- 12-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2373346.32
Checked by/date: MAS- 29-10-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517210.52
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.30	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
0.5 1.0 1.5	C-1		50	15	15					Presence of CONCRETE with backfill materials.	1.00	2.00	▨
2.0	SPT-1						3,3/2,2,3,4	11	2.30 m 14-10-22 ▼	Medium dense, brown, Poorly Graded Sand with Silt (SP-SM). (BACKFILL MATERIALS)			■
2.5 3.0	B-1												
3.5	SPT-2						2,2/3,2,3,3	11		[3.5m - 3.95m]:Medium dense, brown, brown, Poorly Graded SAND with Silt (SP-SM).			
4.0 4.5	B-2												
5.0	SPT-3						3,2/2,3,4,4	13		[5m - 5.45m]:Medium dense, brown, brown, Poorly Graded SAND with Silt (SP-SM).			
5.5 6.0	B-3												
6.5	SPT-4						2,2/3,2,3,3	11		[6.5m - 6.95m]:Medium dense, brown, brown, Poorly Graded SAND with Silt (SP-SM).			
7.0 7.5	B-4												
8.0	SPT-5						4,3/3,2,3,4	12		[8m - 8.45m]:Medium dense, brown, brown, Poorly Graded SAND with Silt (SP-SM).	-5.45	8.45	
8.5 9.0	C-2		29	29	19	1.9				Medium strong, beige to grey fine coarse coral reef LIMESTONE, with voids and vugs. Moderately weathered, fractures (dip = 20°) are rough, closely spaced and joint surfaces are clean. (QUATERNARY DEPOSITS)	-6.50	9.50	▒
9.5	SPT-6						7,50/*,*,*,*	>50		Weak, beige to greish beige fine coarse coral reef LIMESTONE. Completely weathered and not intact of sedimentary origin. (QUATERNARY DEPOSITS)			▒
			16	0	0	NI							

Remarks:

Legend:

SPT: Standard Penetration Test
C : Core Sample
SPT(C) : SPT(Cone)

B : Bulk Disturbed Sample
U : Undisturbed Sample
NI : Non Intact Core

TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation

GWT: Ground Water Table
FI : Fracture Index
FR : Flush Return

BOREHOLE LOG

Borehole No:	BH05 - @ B28	**Date Started:**	10-10-22	**Depth of Casing:**	10.00
Borehole Depth:	20m	**Date Finished:**	12-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 2 of 2	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 12-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**North (Y-m):**	2373346.32
Checked by/date:	MAS- 29-10-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517210.52
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.30	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Coordinates

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
10.5	C-3		16	0	0	NI				Weak, beige to greish beige fine coarse coral reef LIMESTONE. Completely weathered and not intact of sedimentary origin. (QUATERNARY DEPOSITS) *(continued)*	-8.00	11.00	
11.0	SPT-7						3,3/2,3,4,5	14		Medium dense, brown, Silty SAND (SM). (QUATERNARY DEPOSITS)			
11.5 – 12.0	B-5												
12.5	SPT-8						2,2/3,4,4,5	16		[12.5m - 12.95m]:Medium dense, brown, Silty SAND (SM).			
13.0 – 13.5	B-6												
14.0	SPT-9						3,3/2,3,4,5	14		[14m - 14.45m]:Medium dense, brown, Silty SAND (SM).			
14.5 – 15.0	B-7												
15.5	SPT-10						2,2/4,4,3,5	16		[15.5m - 15.95m]:Medium dense, brown, Silty SAND (SM).	-12.95	15.95	
16.0 – 16.5	B-8									Very stiff, grey to brown, Silt (ML) (QUATERNARY DEPOSITS)			
17.0	SPT-11						4,4/5,6,8,9	28		[17m - 17.45m]:Very stiff, grey to brown, Silt (ML)			
17.5 – 18.0	B-9												
18.5	SPT-12						5,5/4,6,8,10	28		[18.5m - 18.95m]:Very stiff, grey to brown, Silt (ML)			
19.0 – 19.5	B-10										-17.00	20.00	

END OF BOREHOLE @ 20.00m

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS Build on our credentials	**BOREHOLE LOG**	**Borehole No:** BH06 - @ B27	**Date Started:** 12-10-22	**Depth of Casing:** 9.50	
		Borehole Depth: 40m	**Date Finished:** 16-10-22	**ID Dia. of Casing:** 127	
	Project Name: Jeddah Port Project			**Borehole Log Scale** 1:50	
Sheet 1 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah		**Client Name:** PC Marine	

Logged by/date: AZ- 16-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2373565.03
Checked by/date: MAS- 05-11-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517166.28
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.40	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
0.5 1.0	C-1		10	0	0	NI				Presence of CONCRETE with backfill materials.	1.50	1.50	▨
1.5	C-2		90	0	0					Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS)	1.00	2.00	■
2.0	SPT-1						50,*/*,*,*,*	>50		Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS)			■
2.5 3.0	C-3		29	0	0	NI			2.40 m 16-10-22		-0.50	3.50	■
3.5	SPT-2						1,3/3,2,3,2	10		Loose, brown, gravelly, silty fine to medium SAND (SM). Gravels are fine to medium, sub-angular to angular in shape and of sedimentary origin. (BACKFILL MATERIALS)			■
4.0 4.5	B-1												■
5.0	SPT-3						1,2/3,4,4,3	14		[5m - 5.45m]:Medium dense, brown, gravelly, silty fine to medium SAND (SM). Gravels are fine to medium, sub-angular to angular in shape and of sedimentary origin. (BACKFILL MATERIALS)			■
5.5 6.0	B-2												■
6.5	SPT-4						7,11/50,*,*,*	>50		[6.5m - 6.79m]:Medium dense, brown, gravelly, silty fine to medium SAND (SM). Gravels are fine to medium, sub-angular to angular in shape and of sedimentary origin. (BACKFILL MATERIALS)			■
7.0 7.5	B-3												■
8.0	SPT-5						6,5/50,*,*,*	>50		[8m - 8.19m]:Medium dense, brown, gravelly, silty fine to medium SAND (SM). Gravels are fine to medium, sub-angular to angular in shape and of sedimentary origin. (BACKFILL MATERIALS)			■
8.5 9.0	B-4										-6.50	9.50	■
9.5			67	24	14	1.3				Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)	-7.00	10.00	■

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS Build on our credentials	**BOREHOLE LOG**	**Borehole No:** BH06 - @ B27 **Borehole Depth:** 40m	**Date Started:** 12-10-22 **Date Finished:** 16-10-22
		Project Name: Jeddah Port Project	**Depth of Casing:** 9.50 **ID Dia. of Casing:** 127 **Borehole Log Scale** 1:50
Sheet 2 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah	**Client Name:** PC Marine

Logged by/date: AZ- 16-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2373565.03
Checked by/date: MAS- 05-11-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517166.28
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.40	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
10.5	C-4		67	24	14	1.3				Medium strong to weak, grey medium grained ANDESITE, fractures (dip = 10°-20°), rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)	-8.00	11.00	
11.0	SPT-6						6,50/*,*,*,*	>50		Weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)			
11.5 12.0	C-5		58	36	7	5							
12.5	SPT-7						8,50/*,*,*,*	>50					
13.0 13.5	C-6		22	0	0	NI					-11.00	14.00	
14.0	SPT-8						3,3/2,2,4,5	13		Medium dense, brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are fine to medium, sub-angular to angular in shape and of sedimentary origin. (BACKFILL MATERIALS)			
14.5 15.0	B-5										-12.50	15.50	
15.5	SPT-9						6,50/*,*,*,*	>50		Very Weak to Weak, light brown of LIMESTONE . Completely weathered and not intact. (BACKFILL MATERIALS)			
16.0 16.5	C-7		19	0	0	NI							
17.0	SPT-10						6,8/50,*,*,*	>50					
17.5 18.0	C-8		20	0	0	4.6							
18.5 19.0 19.5	C-9		67	44	0	NI							

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
Build on our credentials

BOREHOLE LOG

Borehole No:	BH06 - @ B27	**Date Started:**	12-10-22	**Depth of Casing:**	9.50
Borehole Depth:	40m	**Date Finished:**	16-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 3 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 16-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates** **North (Y-m):**	2373565.03
Checked by/date:	MAS- 05-11-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517166.28
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.40	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	SPT-11						50,*/*,*,*,*	>50		Very Weak to Weak, light brown of LIMESTONE . Completely weathered and not intact. (BACKFILL MATERIALS) *(continued)*			
20.5 21.0	C-10		21	20	10	NI					-18.50	21.50	
21.5	SPT-12						3,3/4,5,6,6	21		Medium danse, brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are medium to corse, sub-angular to angular in shape and of sedimentary origin. (BACKFILL MATERIALS)			
22.0 22.5	B-6										-20.00	23.00	
23.0	SPT-13						8,50/*,*,*,*	>50		Very Weak, light brown of LIMESTONE . Completely weathered and not intact. (BACKFILL MATERIALS)			
23.5 24.0	C-11		18	0	0	NI							
24.5	SPT-14						6,50/*,*,*,*	>50					
25.0 25.5	C-12		18	0	0	NI							
26.0	SPT-15						5,50/*,*,*,*	>50					
26.5 27.0	C-13		17	0	0	NI					-24.50	27.50	
27.5	SPT-16						3,3/2,4,4,6	16		Medium dense, brown, Poorly Graded SAND with Silt (SP-SM). (QUATERNARY DEPOSITS)			
28.0 28.5	B-7												
29.0 29.5	SPT-17						2,3/3,4,6,6	19		[29m - 29.45m]:Medium dense, brown, Poorly Graded SAND with Silt (SP-SM).			

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS

Build on our credentials

BOREHOLE LOG

Borehole No:	BH06 - @ B27	**Date Started:**	12-10-22	**Depth of Casing:**	9.50
Borehole Depth:	40m	**Date Finished:**	16-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 4 of 4	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 16-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates**	**North (Y-m):**	2373565.03
Checked by/date:	MAS- 05-11-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water		**East (X-m):**	517166.28
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A		**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.40	**Grid:** WGS 84 UTM 37	**Datum:**	EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	B-8									Medium dense, brown, Poorly Graded SAND with Silt (SP-SM). (QUATERNARY DEPOSITS) *(continued)*	-27.50	30.50	
30.5	SPT-18						3,4/4,5,6,8	23		Very stiff, brown Elastic SILT(MH). (QUATERNARY DEPOSITS)			
31.0 31.5	B-9												
32.0	SPT-19						3,4/4,5,6,7	22		[32m - 32.45m]:Very stiff, brown Elastic SILT(MH).			
32.5 33.0	B-10												
33.5	SPT-20						4,4/5,5,4,6	20		[33.5m - 33.95m]:Very stiff, brown Elastic SILT(MH).			
34.0 34.5	B-11												
35.0	SPT-21						4,4/6,5,7,9	27		[35m - 35.45m]:Very stiff, brown Elastic SILT(MH).			
35.5 36.0	B-12												
36.5	SPT-22						3,4/5,5,6,8	24		[36.5m - 36.95m]:Very stiff, brown Elastic SILT(MH).	-34.50	37.50	
37.0 37.5	B-13									Medium strong, brown, medium grained LIMESTONE with voids. Moderately weathered, fractures (dip = 5°- 10°), rough, closely spaced and joint surfaces are clean (QUATERNARY DEPOSITS)			
38.0	SPT-23						7,50/*,*,*,*	>50					
38.5 39.0 39.5	C-14		40	38	7	4.2					-37.00	40.00	

END OF BOREHOLE @ 40.00m

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
Build on our credentials

BOREHOLE LOG

Borehole No:	BH07 - @ B30	**Date Started:**	18-10-22	**Depth of Casing:**	10.50
Borehole Depth:	40m	**Date Finished:**	21-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 1 of 5	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 21-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates** North (Y-m):	2372928.68
Checked by/date:	MAS- 30-10-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**Coordinates** East (X-m):	517276.95
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Coordinates** Level (m):	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.10	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
0.5 1.0	C-1		44	17	17					Presence of CONCRETE with backfill materials.	1.50	1.50	▨
1.5 2.0 2.5 3.0	C-2		60	0	0				2.10 m 23-10-22	Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS)	-0.50	3.50	■
3.5	SPT-1						7,50/*,*,*,*	>50		Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)			■
4.0 4.5	C-3		18	0	0								■
5.0	SPT-2						6,6/50,*,*,*	>50					■
5.5 6.0	C-4		23	0	0								■
6.5	SPT-3						50,*/*,*,*,*	>50					■
7.0 7.5	C-5		17	0	0								■
8.0	SPT-4						7,50/*,*,*,*	>50					■
8.5 9.0	C-6		13	0	0								■
9.5	SPT-5						6,50/*,*,*,*	>50					■
			22	0	0								■

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS Build on our credentials	**BOREHOLE LOG**	**Borehole No:** BH07 - @ B30	**Date Started:** 18-10-22	**Depth of Casing:** 10.50	
		Borehole Depth: 40m	**Date Finished:** 21-10-22	**ID Dia. of Casing:** 127	
	Project Name: Jeddah Port Project			**Borehole Log Scale** 1:50	
Sheet 2 of 5	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah		**Client Name:** PC Marine	

Logged by/date:	AZ- 21-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):**	2372928.68
Checked by/date:	MAS- 30-10-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):**	517276.95
Drilled by:	Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.10	**Grid:** WGS 84 UTM 37	**Datum:**	EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
10.5	C-7		22	0	0					Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS) *(continued)*			
11.0	SPT-6						6,50/*,*,*,*	>50					
11.5 12.0	C-8		15	0	0								
12.5	SPT-7						5,50/*,*,*,*	>50					
13.0 13.5	C-9		16	0	0								
14.0	SPT-8						5,6/50,*,*,*	>50					
14.5 15.0	C-10		19	0	0								
15.5	SPT-9						6,5/4,50,*,*	>50					
16.0 16.5	C-11		20	0	0								
17.0	SPT-10						50,*/*,*,*,*	>50					
17.5 18.0	C-12		24	0	0								
18.5	SPT-11						6,5/50,*,*,*	>50					
	C-13		33	33	33						-16.00	19.00	
19.0 19.5	B-1									Medium dense, brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are medium to corse, sub-angular to angular in shape and of sedimentary origin. (BACKFILL MATERIALS)			

Remarks:

Legend:

SPT: Standard Penetration Test
C : Core Sample
SPT(C) : SPT(Cone)

B : Bulk Disturbed Sample
U : Undisturbed Sample
NI : Non Intact Core

TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation

GWT: Ground Water Table
FI : Fracture Index
FR : Flush Return

ACTS Build on our credentials	**BOREHOLE LOG**	**Borehole No:** BH07 - @ B30	**Date Started:** 18-10-22	**Depth of Casing:** 10.50	
		Borehole Depth: 40m	**Date Finished:** 21-10-22	**ID Dia. of Casing:** 127	
	Project Name: Jeddah Port Project			**Borehole Log Scale** 1:50	
Sheet 3 of 5	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah		**Client Name:** PC Marine	
Logged by/date: AZ- 21-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2372928.68	
Checked by/date: MAS- 30-10-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517276.95	
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00	
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.10	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008	

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	SPT-12						3,3/2,3,4,5	14		Medium dense, brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are medium to corse, sub-angular to angular in shape and of sedimentary origin. (BACKFILL MATERIALS) *(continued)*			
20.5 21.0	B-2										-18.50	21.50	
21.5 22.0 22.5	C-14		66	45	21					Medium strong, grey medium grained ANDESITE, fractures (dip = 30°-40°), rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)	-20.00	23.00	
23.0 23.5 24.0	C-15		66	20	10					Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)	-21.20	24.20	
										Very weak, light brown LIMESTONE. Completely weathered and joint surfaces are clean (BACKFILL MATERIALS)	-21.50	24.50	
24.5	SPT-13						3,2/2,4,5,7	18		Medium dense, grey, slightly gravelly, silty fine to medium SAND (SM). Gravels are fine to medium, sub-rounded to rounded in shape and of sedimentary origin. (QUATERNARY DEPOSITS)			
25.0 25.5	B-3												
26.0	SPT-14						2,2/3,4,4,6	17		[26m - 26.45m]:Medium dense, grey, slightly gravelly, silty fine to medium SAND (SM). Gravels are fine to medium, , sub-rounded to rounded in shape and of sedimentary origin.			
26.5 27.0	B-4										-24.50	27.50	
27.5	SPT-15						3,2/4,4,5,7	20		Medium dense, brown, slightly gravelly, silty fine to medium SAND (SM). Gravels are fine to medium, , sub-rounded to rounded in shape and of sedimentary origin. (QUATERNARY DEPOSITS)			
28.0 28.5	B-5												
29.0	SPT-16						4,3/3,5,5,6	19		[29m - 29.45m]:Medium dense, brown, slightly gravelly, silty fine to medium SAND (SM). Gravels are fine to medium, , sub-rounded to rounded in shape and of sedimentary origin.			
29.5											-27.00	30.00	

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
Build on our credentials

BOREHOLE LOG

Borehole No:	BH07 - @ B30	**Date Started:**	18-10-22	**Depth of Casing:**	10.50
Borehole Depth:	40m	**Date Finished:**	21-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 4 of 5	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 21-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**North (Y-m):**	2372928.68
Checked by/date:	MAS- 30-10-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517276.95
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.10	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

(Coordinates)

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	B-6									Very stiff, brown, Sandy SILT (ML) (QUATERNARY DEPOSITS)			
30.5	SPT-17						4,5/5,6,7,9	27					
31.0 31.5	B-7												
32.0	SPT-18						3,5/4,6,8,7	25		[32m - 32.45m]:Very stiff, brown, Sandy SILT (ML)			
32.5 33.0	B-8										-30.50	33.50	
33.5 34.0 34.5	C-16		66	40	0					Weak to very weak, light brown to brown, medium grained LIMESTONE with voids. Highly to completely weathered, fractures (dip = 10°-20°), rough, closely spaced and joint surfaces are clean (QUATERNARY DEPOSITS)			
35.0 35.5 36.0	C-17		66	35	23								
36.5 37.0 37.5	C-18		53	47	30								
38.0 38.5 39.0	C-19		44	20	0						-36.50	39.50	
39.5	SPT-19						3,2/4,4,5,6	19		Very stiff, brown sandy CLAY (QUATERNARY DEPOSITS)	-37.00	40.00	

END OF BOREHOLE @ 40.00m

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
Build on our credentials

BOREHOLE LOG

Borehole No:	BH07 - @ B30	**Date Started:**	18-10-22	**Depth of Casing:**	10.50
Borehole Depth:	40m	**Date Finished:**	21-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 5 of 5	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 21-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates** **North (Y-m):**	2372928.68
Checked by/date:	MAS- 30-10-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517276.95
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.10	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT		Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
							Blows/ 75mm	N Value					
	B-9												
40.5													
41.0													
41.5													
42.0													
42.5													
43.0													
43.5													
44.0													
44.5													
45.0													
45.5													
46.0													
46.5													
47.0													
47.5													
48.0													
48.5													
49.0													
49.5													

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
Build on our credentials

BOREHOLE LOG

Borehole No:	BH08 - @ B31	**Date Started:**	22-10-22	**Depth of Casing:**	9.00
Borehole Depth:	40m	**Date Finished:**	26-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 1 of 5	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 26-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**North (Y-m):**	2372685.77
Checked by/date:	MAS- 07-11-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517305.79
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.00	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Coordinates

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
0.5 1.0 1.5	C-1		50	15	15				2.00 m 28-10-22	Presence of CONCRETE with backfill materials.	1.00	2.00	
2.0	SPT-1						6,5/50,*,*,*	>50		Very weak, light brown LIMESTONE. Completely weathered and joint surfaces are clean (BACKFILL MATERIALS)	-0.50	3.50	
2.5 3.0	C-2		22	0	0								
3.5	SPT-2						3,4/3,3,5,6	17		Medium dense, light brown, gravelly, silty fine to medium SAND. Gravels are fine to medium, sub-angular to angular in shape and of sedimentary origin. (BACKFILL MATERIALS)	-0.95	3.95	
4.0 4.5	C-3		32	0	0					Very weak, light brown LIMESTONE. Completely weathered and joint surfaces are clean (BACKFILL MATERIALS)	-5.00	8.00	
5.0	SPT-3						5,6/50,*,*,*	>50					
5.5 6.0	C-4		62	0	0								
6.5	SPT-4						6,50/*,*,*,*	>50					
7.0 7.5	C-5		54	0	0								
8.0	SPT-5						3,3/2,4,4,5	15		Medium dense, light brown, gravelly, silty fine to medium SAND. Gravels are fine to medium, sub-angular to angular in shape and of sedimentary origin. (BACKFILL MATERIALS)	-5.45	8.45	
8.5 9.0	C-6		34	0	0					Very weak, light brown LIMESTONE. Completely weathered and joint surfaces are clean (BACKFILL MATERIALS)	-6.50	9.50	
9.5	SPT-6						50,*/*,*,*,*	>50		Medium strong to weak, grey medium grained ANDESITE, fractures (dip = 10°-20°), rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)			
			21	20	11								

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
Build on our credentials

BOREHOLE LOG

Borehole No: BH08 - @ B31	**Date Started:** 22-10-22	**Depth of Casing:** 9.00	
Borehole Depth: 40m	**Date Finished:** 26-10-22	**ID Dia. of Casing:** 127	
Project Name: Jeddah Port Project		**Borehole Log Scale** 1:50	
Sheet 2 of 5	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah	**Client Name:** PC Marine
Logged by/date: AZ- 26-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates** **North (Y-m):** 2372685.77
Checked by/date: MAS- 07-11-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water	**East (X-m):** 517305.79
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A	**Level (m):** 3.00
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.00	**Grid:** WGS 84 UTM 37 **Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
10.5	C-7		21	20	11					Medium strong to weak, grey medium grained ANDESITE, fractures (dip = 10°-20°), rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS) *(continued)*			■
11.0 11.5 12.0	C-8		50	37	16						-9.50	12.50	■
12.5	SPT-7						7,50/*,*,*,*	>50		Very weak, grey medium grained ANDESITE, Completely weathered and not intact, and joint surfaces are stained by iron oxide (BACKFILL MATERIALS)			■
13.0 13.5	C-9		15	0	0						-11.00	14.00	■
14.0	SPT-8						6,50/*,*,*,*	>50		Medium strong to weak, grey medium grained ANDESITE, fractures (dip = 5-15°), rough, closely spaced and joint surfaces are clean (BACKFILL MATERIALS)			■
14.5	C-10		38	38	0								■
15.0	C-11		60	0	0						-12.50	15.50	■
15.5	SPT-8						2,2/3,4,5,4	16		Medium dense, light brown,Poorly Graded SAND (SP). (QUATERNARY DEPOSITS)			⁘
16.0 16.5	B-1												⁘
17.0	SPT-9						2,1/2,3,3,2	10		[17m - 17.45m]:Medium dense, light brown, Poorly Graded SAND (SP).			⁘
17.5 18.0	B-2												⁘
18.5	SPT-10						2,2/3,4,3,3	13		[18.5m - 18.95m]:Medium dense, light brown, Poorly Graded SAND (SP).			⁘
19.0 19.5	B-3												⁘

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS Build on our credentials	**BOREHOLE LOG**	**Borehole No:** BH08 - @ B31	**Date Started:** 22-10-22	**Depth of Casing:** 9.00	
		Borehole Depth: 40m	**Date Finished:** 26-10-22	**ID Dia. of Casing:** 127	
	Project Name: Jeddah Port Project			**Borehole Log Scale** 1:50	
Sheet 3 of 5	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah		**Client Name:** PC Marine	
Logged by/date: AZ- 26-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2372685.77	
Checked by/date: MAS- 07-11-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517305.79	
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00	
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.00	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008	

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	SPT-11						2,3/3,4,3,5	15		Medium dense, light brown,Poorly Graded SAND (SP). (QUATERNARY DEPOSITS) *(continued)*			
20.5 21.0	B-4												
21.5	SPT-12						1,2/2,3,2,3	10		[21.5m - 21.95m]:Medium dense, light brown, Poorly Graded SAND (SP).			
22.0 22.5	B-5												
23.0	SPT-13						2,2/3,2,3,4	12		[23m - 23.45m]:Medium dense, light brown, Poorly Graded SAND (SP).			
23.5 24.0	B-6												
24.5	SPT-14						3,4/7,50,*,*	>50		[24.5m - 24.95m]:Very dense, light brown, cobbly, gravelly, Poorly Graded SAND (SP), Gravels and cobbles are sub-angular to sub-rounded in shape and of LIMESTONE origin.			
25.0 25.5	B-7												
26.0	SPT-15						6,50/*,*,*,*	>50		[26m - 26.45m]:Very dense, light brown, cobbly, gravelly, Poorly Graded SAND (SP), Gravels and cobbles are sub-angular to sub-rounded in shape and of LIMESTONE origin.			
26.5 27.0	B-8												
27.5	SPT-16						2,3/4,3,5,7	19		[27.5m - 27.95m]:Medium dense, light brown, cobbly, gravelly, Poorly Graded SAND (SP), Gravels and cobbles are sub-angular to sub-rounded in shape and of LIMESTONE origin.			
28.0 28.5	B-9												
29.0	SPT-17						1,2/2,3,2,3	10		[29m - 29.45m]:Medium dense, light brown, cobbly, gravelly, Poorly Graded SAND (SP), Gravels and cobbles are sub-angular to sub-rounded in shape and of LIMESTONE origin.			
29.5													

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS Build on our credentials	**BOREHOLE LOG**	**Borehole No:** BH08 - @ B31	**Date Started:** 22-10-22	**Depth of Casing:** 9.00	
		Borehole Depth: 40m	**Date Finished:** 26-10-22	**ID Dia. of Casing:** 127	
	Project Name: Jeddah Port Project			**Borehole Log Scale** 1:50	
Sheet 4 of 5	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah	**Client Name:** PC Marine		

Logged by/date: AZ- 26-10-22	**Type of Boring:** Rotary Cored	**Positioning:** GPS	**Coordinates**	**North (Y-m):** 2372685.77
Checked by/date: MAS- 07-11-22	**Dia. of Boring:** 122mm	**Drilling Fluid:** Water		**East (X-m):** 517305.79
Drilled by: Yossif	**Core Barrel Type:** PQ	**Piezometer:** N/A		**Level (m):** 3.00
Rig Type: B48-N	**Core Diameter:** 83mm	**GWT (mbGL):** 2.00	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	B-10									Medium dense, light brown,Poorly Graded SAND (SP). (QUATERNARY DEPOSITS) *(continued)*			
30.5	SPT-18						2,2/3,2,3,2	10		[30.5m - 30.95m]:Medium dense, light brown, cobbly, gravelly, Poorly Graded SAND (SP), Gravels and cobbles are sub-angular to sub-rounded in shape and of LIMESTONE origin.			
31.0 31.5	B-11										-29.00	32.00	
32.0	SPT-19						2,1/3,2,3,4	12		Medium dense, dark brown, Poorly Graded SAND with Silt (SP-SM). (QUATERNARY DEPOSITS)			
32.5 33.0	B-12												
33.5	SPT-20						2,2/3,2,1,2	8		[33.5m - 33.95m]:Loose, dark brown, Poorly Graded SAND with Silt (SP-SM).			
34.0 34.5	B-13												
35.0	SPT-21						2,1/3,2,3,4	12		[35m - 35.45m]:Medium dense, dark brown, Poorly Graded SAND with Silt (SP-SM).			
35.5 36.0	B-14												
36.5	SPT-22						1,1/2,3,3,3	11		[36.5m - 36.95m]:Medium dense, dark brown, Poorly Graded SAND with Silt (SP-SM).			
37.0 37.5	B-15												
38.0	SPT-23						2,2/1,3,3,2	9		[38m - 38.45m]:Loose, dark brown, Poorly Graded SAND with Silt (SP-SM).			
38.5 39.0	B-16												
39.5	SPT-24						1,2/3,2,4,3	12		[39.5m - 39.95m]:Medium dense, dark brown, Poorly Graded SAND with Silt (SP-SM).	-37.00	40.00	

END OF BOREHOLE @ 40.00m

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
Build on our credentials

BOREHOLE LOG

Borehole No:	BH08 - @ B31	**Date Started:**	22-10-22	**Depth of Casing:**	9.00
Borehole Depth:	40m	**Date Finished:**	26-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50

Sheet 5 of 5	**Project No:** ACTS/KSA/Q-20017/22	**Location:** Jeddah	**Client Name:** PC Marine

Logged by/date:	AZ- 26-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates**	**North (Y-m):**	2372685.77
Checked by/date:	MAS- 07-11-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water		**East (X-m):**	517305.79
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A		**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.00	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008	

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT		Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
							Blows/ 75mm	N Value					
	B-17												
40.5													
41.0													
41.5													
42.0													
42.5													
43.0													
43.5													
44.0													
44.5													
45.0													
45.5													
46.0													
46.5													
47.0													
47.5													
48.0													
48.5													
49.0													
49.5													

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
Build on our credentials

BOREHOLE LOG

Borehole No:	BH09 - @ B31	**Date Started:**	30-10-22	**Depth of Casing:**	9.00
Borehole Depth:	20m	**Date Finished:**	31-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 1 of 3	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 31-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates** **North (Y-m):**	2372686.75
Checked by/date:	MAS- 06-11-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517339.03
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.0	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
0.5 1.0	C-1		24	17	10					Presence of CONCRETE top slab.	1.50	1.50	▨
1.5	SPT-1						1,2/2,1,3,2	8	2.0 m 02-11-22	Loose, dark brown, silty fine to medium SAND. (BACKFILL MATERIALS)	1.05	1.95	■
2.0 2.5	C-2		43	0	0	NI				Presumably rockfill, fine to coarse sizes (BACKFILL MATERIALS)	0.00	3.00	■
3.0	SPT-2						2,2/1,3,2,3	9		Loose, brown, Poorly Graded SAND with Silt (SP-SM). (BACKFILL MATERIALS)	-0.45	3.45	■
3.5 4.0	C-3		24	0	0	NI				Very weak, light brown of LIMESTONE. Completely weathered and not intact. (BACKFILL MATERIALS).	-4.50	7.50	■
4.5	SPT-3						3,4/3,50,*,*	>50					
5.0 5.5	C-4		28	0	0	NI							
6.0	SPT-3						6,50/*,*,*,*	>50					
6.5 7.0	C-4		22	0	0	NI							
7.5	SPT-4						3,4/50,*,*,*	>50		Presence of CONCRETE bottom slab with backfill materials.	-6.00	9.00	▨
8.0 8.5	C-5		23	20	12	NI							
9.0 9.5	C-6		67	0	0	NI				Very weak, light brown of LIMESTONE. Completely weathered and not intact. (BACKFILL MATERIALS).			■

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
Build on our credentials

BOREHOLE LOG

Borehole No:	BH09 - @ B31	**Date Started:**	30-10-22	**Depth of Casing:**	9.00
Borehole Depth:	20m	**Date Finished:**	31-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 2 of 3	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 31-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates** North (Y-m):	2372686.75
Checked by/date:	MAS- 06-11-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517339.03
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.0	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
			67	0	0	NI				Very weak, light brown of LIMESTONE. Completely weathered and not intact. (BACKFILL MATERIALS). *(continued)*	-7.50	10.50	
10.5	SPT-5						1,2/2,3,2,4	11		Medium dense, light brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are sub-angular to sub-rounded in shape and of LIMESTONE origin. (BACKFILL MATERIALS).			
11.0 11.5	B-1												
12.0	SPT-6						2,2/3,2,4,2	11		[12m - 12.45m]:Medium dense, light brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are sub-angular to sub-rounded in shape and of LIMESTONE origin.			
12.5 13.0	B-2												
13.5	SPT-7						3,3/2,3,4,5	14		[13.5m - 13.95m]:Medium dense, light brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are sub-angular to sub-rounded in shape and of LIMESTONE origin.			
14.0 14.5	B-3												
15.0	SPT-8						2,3/3,4,3,4	14		[15m - 15.45m]:Medium dense, light brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are sub-angular to sub-rounded in shape and of LIMESTONE origin.			
15.5 16.0	B-4												
16.5	SPT-9						2,3/3,2,3,4	12		[16.5m - 16.95m]:Medium dense, light brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are sub-angular to sub-rounded in shape and of LIMESTONE origin.			
17.0 17.5	B-5												
18.0	SPT-10						3,3/2,3,4,5	14		[18m - 18.45m]:Medium dense, light brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are sub-angular to sub-rounded in shape and of LIMESTONE origin.			
18.5 19.0	B-6												
19.5	SPT-11						3,3/2,3,4,3	12		[19.5m - 19.95m]:Medium dense, light brown, gravelly, Poorly Graded SAND with Silt (SP-SM). Gravels are sub-angular to sub-rounded in shape and of LIMESTONE origin.	-17.00	20.00	

END OF BOREHOLE @ 20.00m

Remarks:

Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

ACTS
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BOREHOLE LOG

Borehole No:	BH09 - @ B31	**Date Started:**	30-10-22	**Depth of Casing:**	9.00
Borehole Depth:	20m	**Date Finished:**	31-10-22	**ID Dia. of Casing:**	127
Project Name:	Jeddah Port Project			**Borehole Log Scale**	1:50
Sheet 3 of 3	**Project No:** ACTS/KSA/Q-20017/22	**Location:**	Jeddah	**Client Name:**	PC Marine

Logged by/date:	AZ- 31-10-22	**Type of Boring:**	Rotary Cored	**Positioning:**	GPS	**Coordinates** **North (Y-m):**	2372686.75
Checked by/date:	MAS- 06-11-22	**Dia. of Boring:**	122mm	**Drilling Fluid:**	Water	**East (X-m):**	517339.03
Drilled by:	Yossif	**Core Barrel Type:**	PQ	**Piezometer:**	N/A	**Level (m):**	3.00
Rig Type:	B48-N	**Core Diameter:**	83mm	**GWT (mbGL):**	2.0	**Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

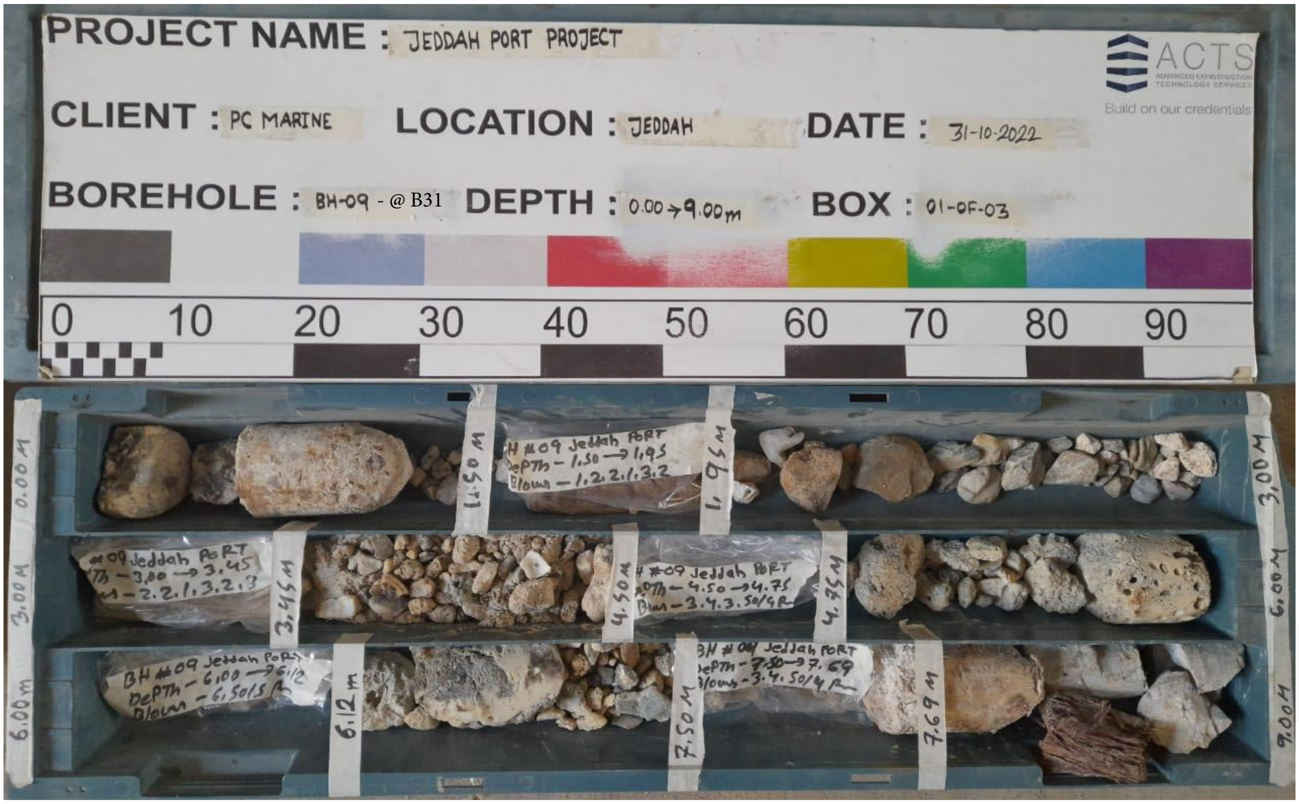
Scale (m)	Sample Type & Ref	UDS	TCR (%)	SCR (%)	RQD (%)	FI	SPT Blows/ 75mm	SPT N Value	Depth of GWT (m)	Description & Remarks	Level (m)	Depth (m)	Legend
	B-7												
20.5													
21.0													
21.5													
22.0													
22.5													
23.0													
23.5													
24.0													
24.5													
25.0													
25.5													
26.0													
26.5													
27.0													
27.5													
28.0													
28.5													
29.0													
29.5													

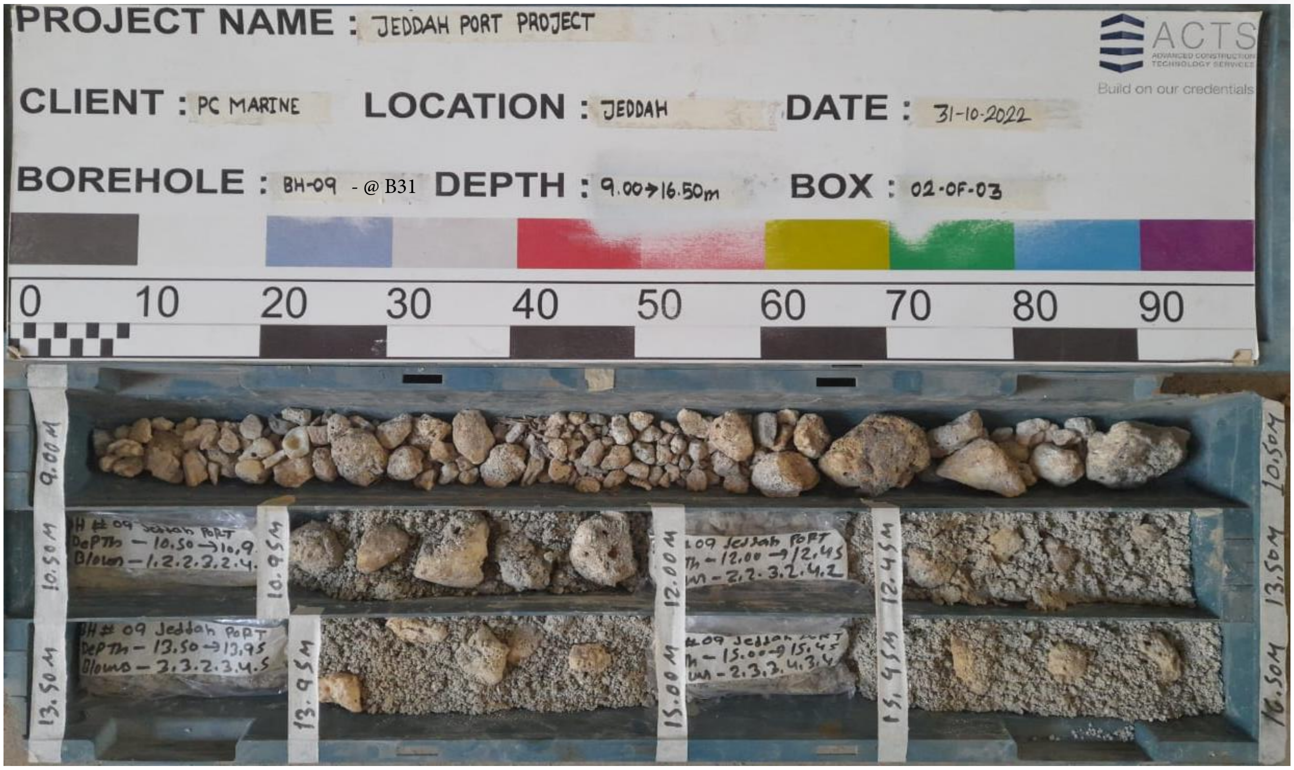
Remarks:

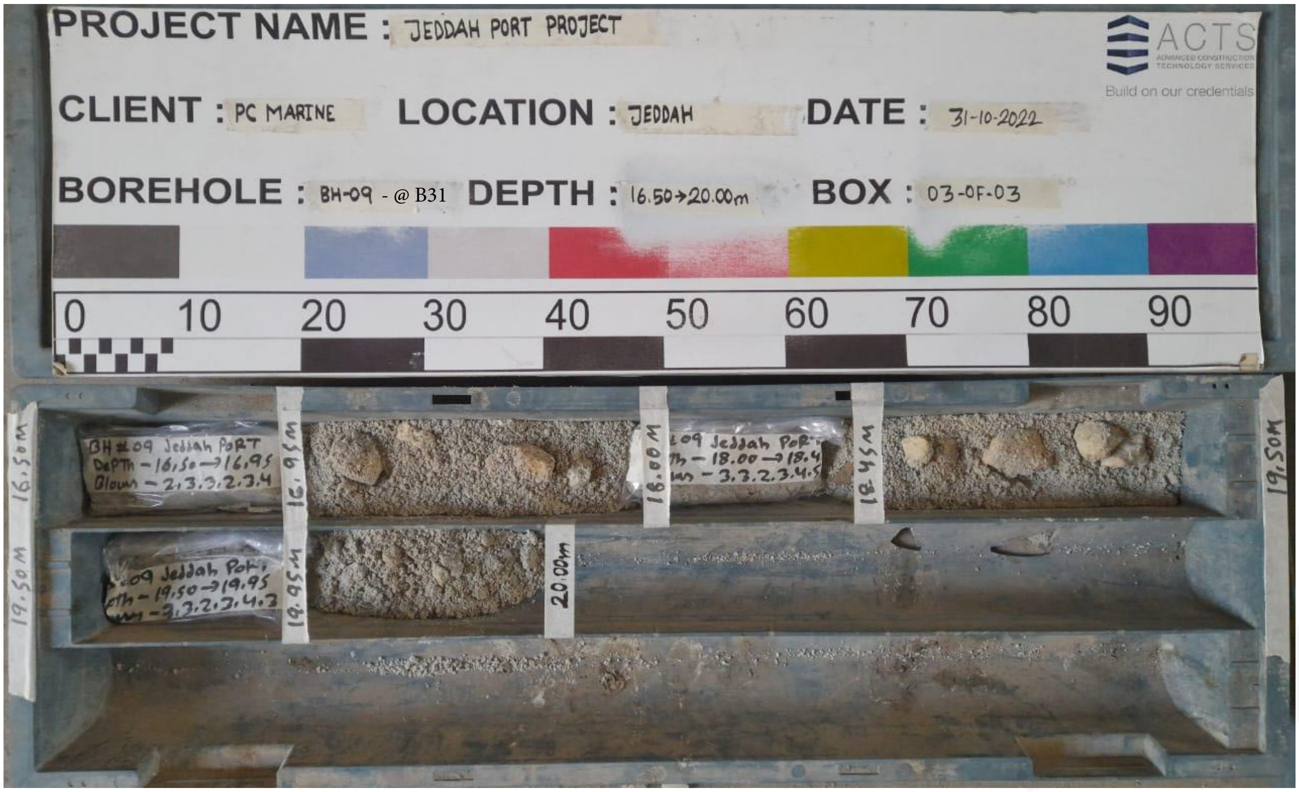
Legend:

SPT: Standard Penetration Test	B : Bulk Disturbed Sample	TCR: Total Core Recovery	GWT: Ground Water Table
C : Core Sample	U : Undisturbed Sample	SCR: Solid Core Recovery	FI : Fracture Index
SPT(C) : SPT(Cone)	NI : Non Intact Core	RQD: Rock Quality Designation	FR : Flush Return

Appendix B – Corebox Photos


PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 31-10-2022
BOREHOLE : BH-09 - @ B31
DEPTH : 0.00→9.00m
BOX : 01-OF-03
0 10 20 30 40 50 60 70 80 90
0.00 M
1.50 M
1.95 M
3.00 M
3.45 M
4.50 M
4.75 M
6.00 M
6.12 m
7.50 M
7.69 M
9.00 M


PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 31-10-2022
BOREHOLE : BH-09 - @ B31
DEPTH : 9.00→16.50m
BOX : 02-OF-03
0 10 20 30 40 50 60 70 80 90
9.00 M
10.50 M
10.95 M
12.00 M
12.45 M
13.50 M
13.95 M
15.00 M
15.45 M
16.50 M

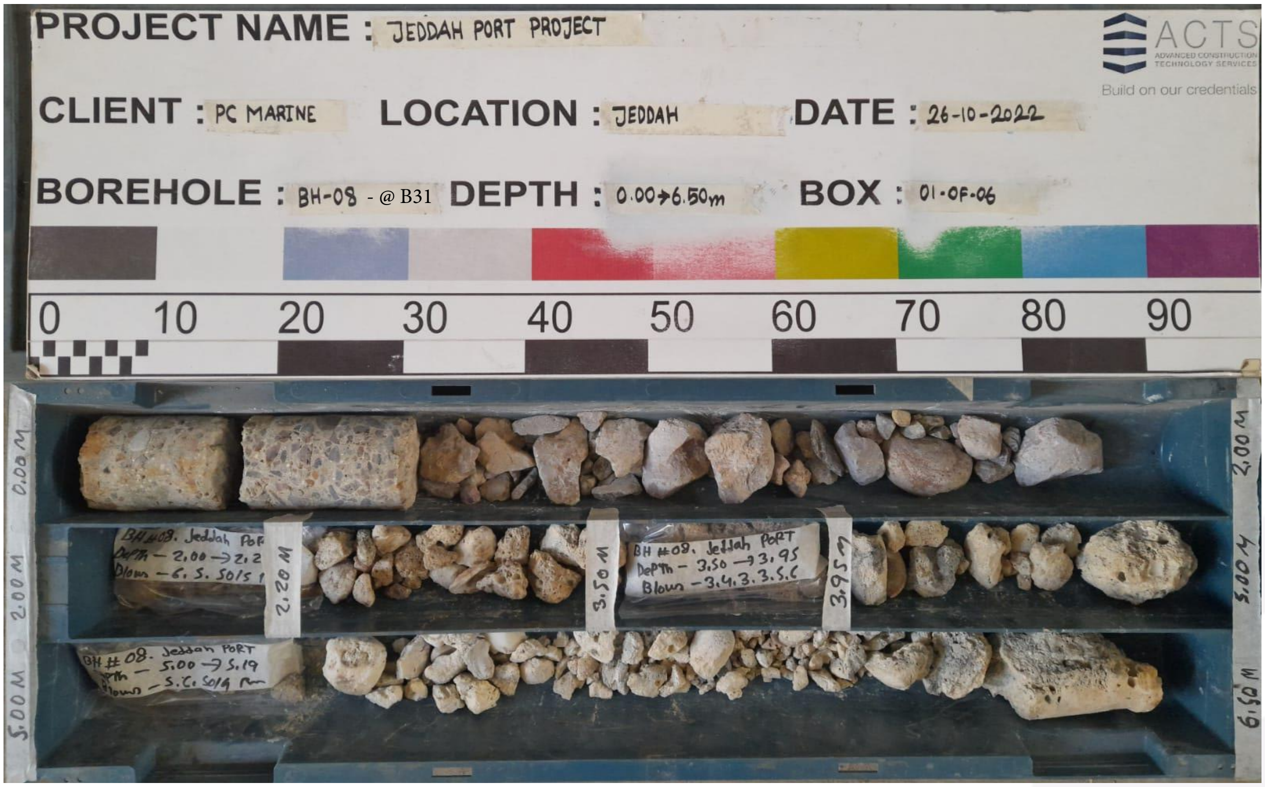


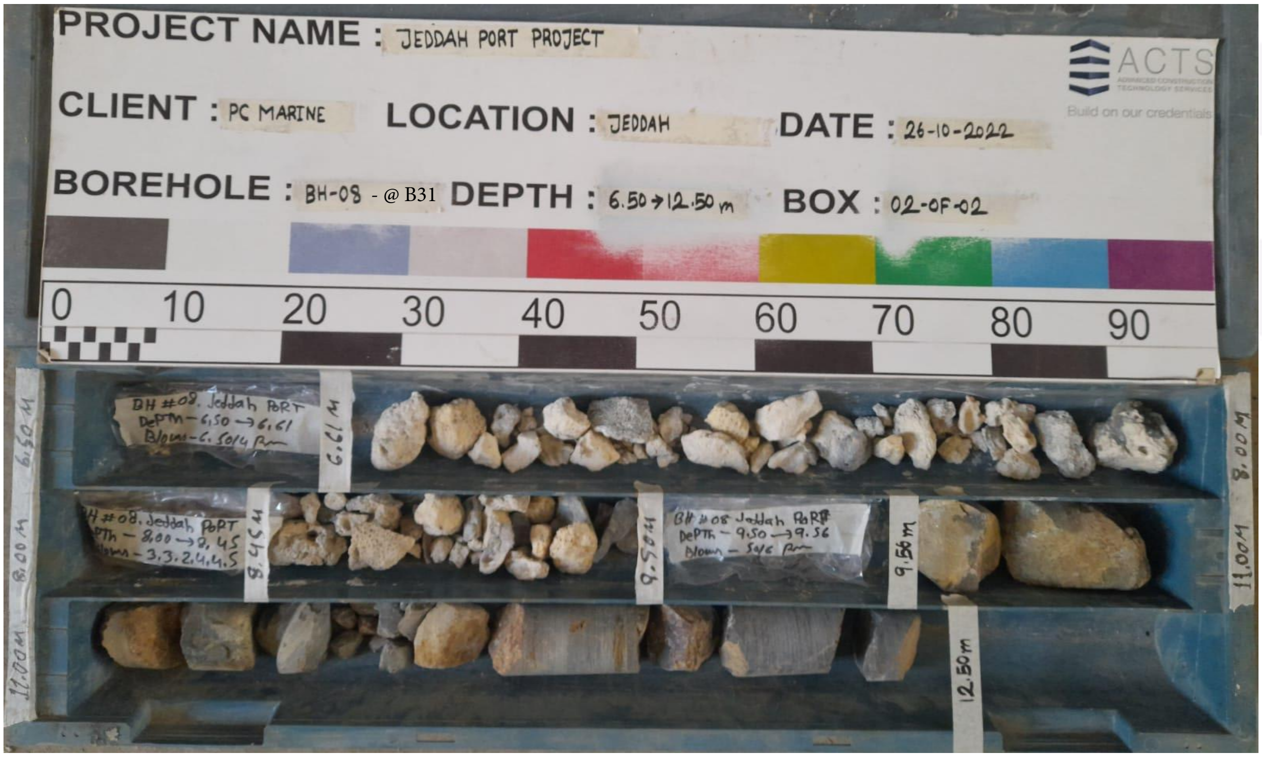
PROJECT NAME : JEDDAH PORT PROJECT

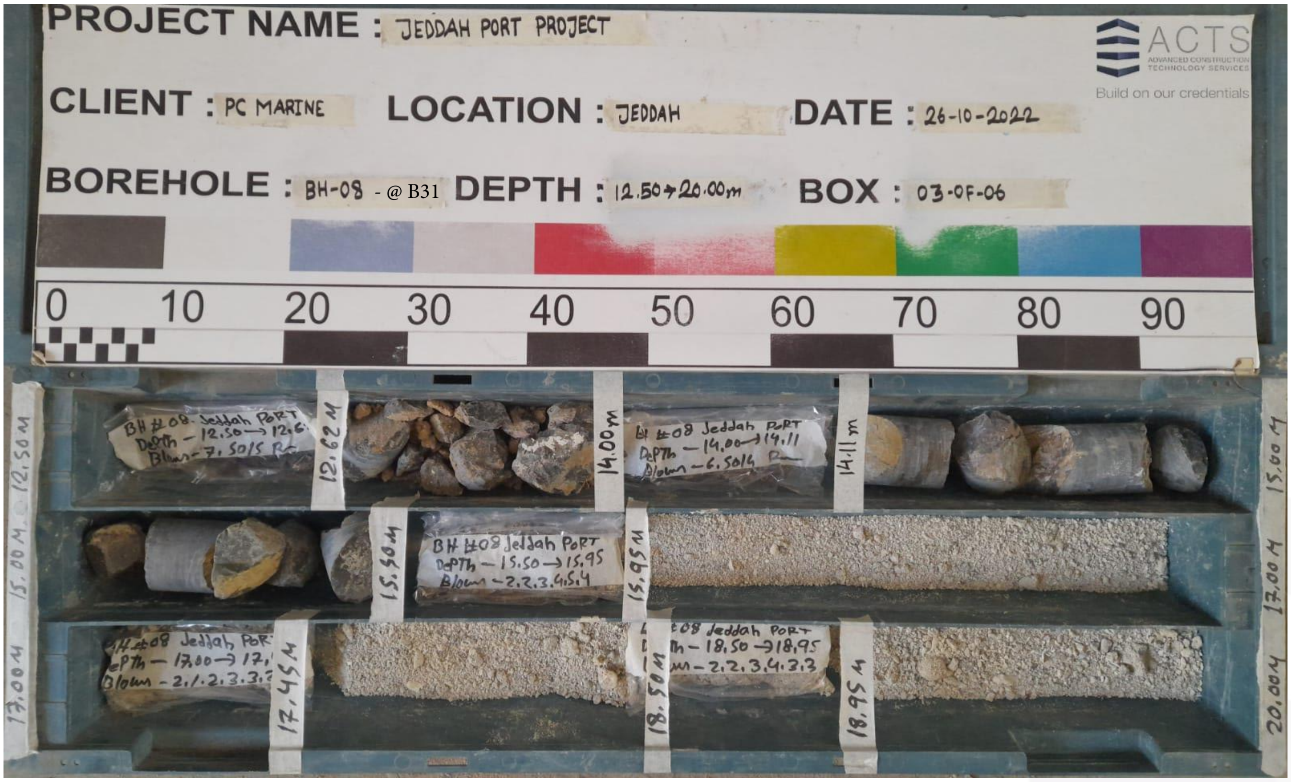
CLIENT : PC MARINE LOCATION : JEDDAH DATE : 31-10-2022

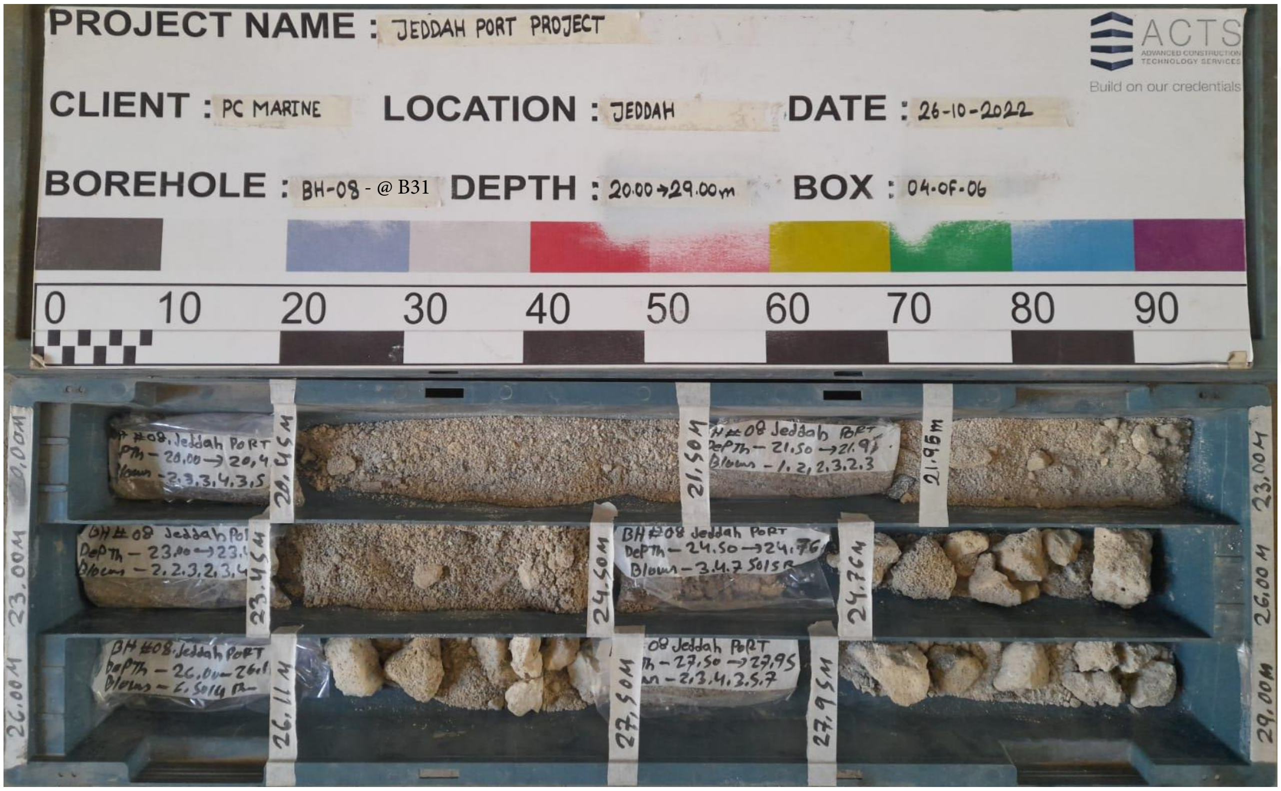
BOREHOLE : BH-09 - @ B31 DEPTH : 16.50→20.00m BOX : 03-OF-03

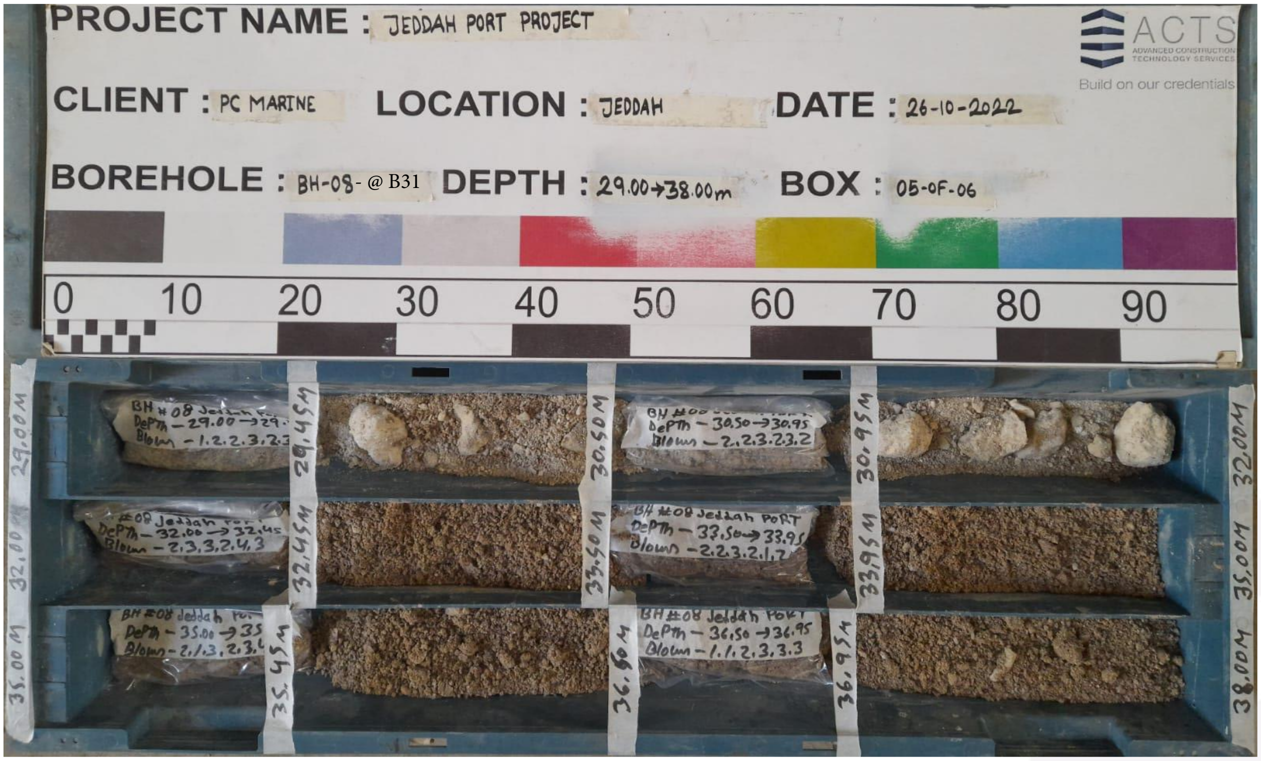
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0
10
20
30
40
50
60
70
80
90
16.50m
BH#09 Jeddah PoRT
DePTh - 16.50→16.95
Blows - 2.3.3.2.3.4
16.95m
18.00M
.09 Jeddah PoR
th - 18.00→18.4
ws - 3.3.2.3.4.5
18.45m
19.50M
19.50m
.09 Jeddah PoR
th - 19.50→19.95
ws - 3.3.2.3.4.3
19.95m
20.00m

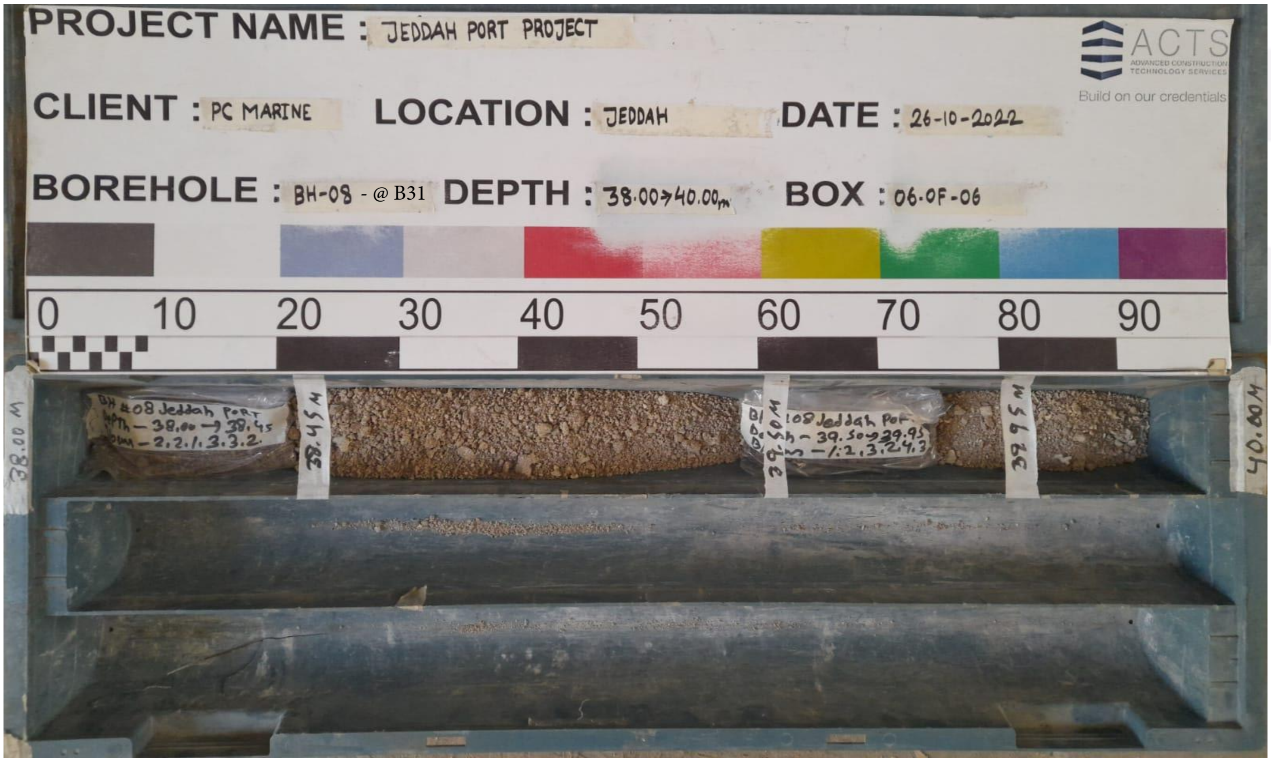

PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 26-10-2022
BOREHOLE : BH-08 - @ B31
DEPTH : 0.00→6.50m
BOX : 01-OF-06
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0 10 20 30 40 50 60 70 80 90
0.00 M
2.00 M
2.00 M
3.00 M
5.00 M
6.50 M
2.20 M
3.50 M
3.95 M
BH #08. Jeddah PoRT
DePTh – 2.00 → 2.2
Blow – 6, 5, 50/5
BH #08. Jeddah PoRT
DePTh – 3.50 → 3.95
Blow – 3.4.3.3.5.6
BH #08. Jeddah PoRT
DePTh – 5.00 → 5.19
Blow – 5.6. 50/4

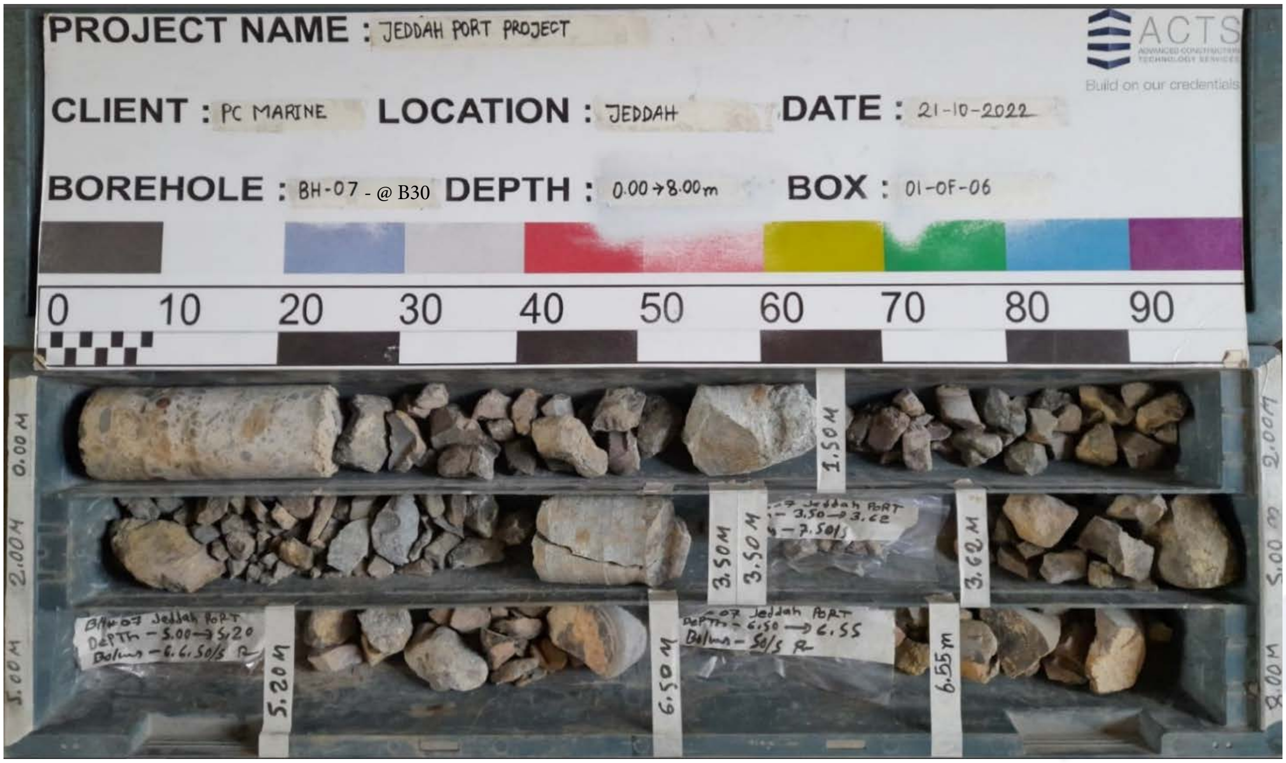

PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 26-10-2022
BOREHOLE : BH-08 - @ B31
DEPTH : 6.50→12.50m
BOX : 02-OF-02
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0 10 20 30 40 50 60 70 80 90
6.50 M
8.00 M
8.00 M
11.00 M
11.00 M
6.61 M
8.45 M
9.50 M
9.56 m
12.50 m
BH #08. Jeddah PoRT
DePTh – 6.50 → 6.61
Blows – 6. 50/4
BH #08. Jeddah PoRT
DePTh – 8.00 → 8.45
Blow – 3.3.2.4.4.5
BH #08 Jeddah PoRT
DePTh – 9.50 → 9.56
Blow – 50/6

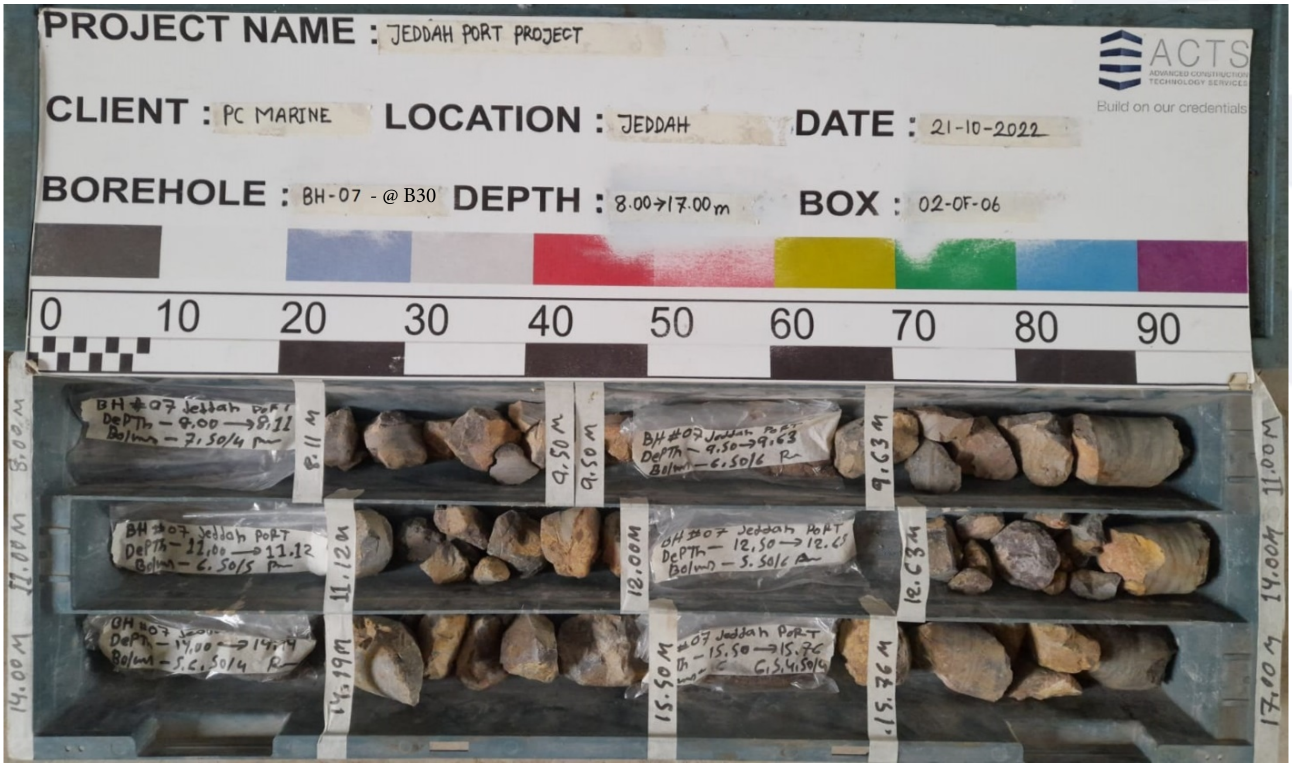

PROJECT NAME : JEDDAH PORT PROJECT
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 26-10-2022
BOREHOLE : BH-08 - @ B31
DEPTH : 12.50→20.00m
BOX : 03-OF-06
0 10 20 30 40 50 60 70 80 90
12.50M
BH#08 Jeddah PoRT
DePTh - 12.50→12.6
Blows - 7, 50/5 R
12.62M
14.00m
BH#08 Jeddah PoRT
DePTh - 14.00→14.11
Blows - 6, 50/4 R
14.11m
15.00M
15.00M
15.50M
BH#08 Jeddah PoRT
DePTh - 15.50→15.95
Blows - 2.2.3.4.5.4
15.95M
17.00M
17.00M
BH#08 Jeddah PoRT
DePTh - 17.00→17.
Blows - 2.1.2.3.3.
17.45M
18.50M
BH#08 Jeddah PoRT
DePTh - 18.50→18.95
Blows - 2.2.3.4.3.3
18.95M
20.00M

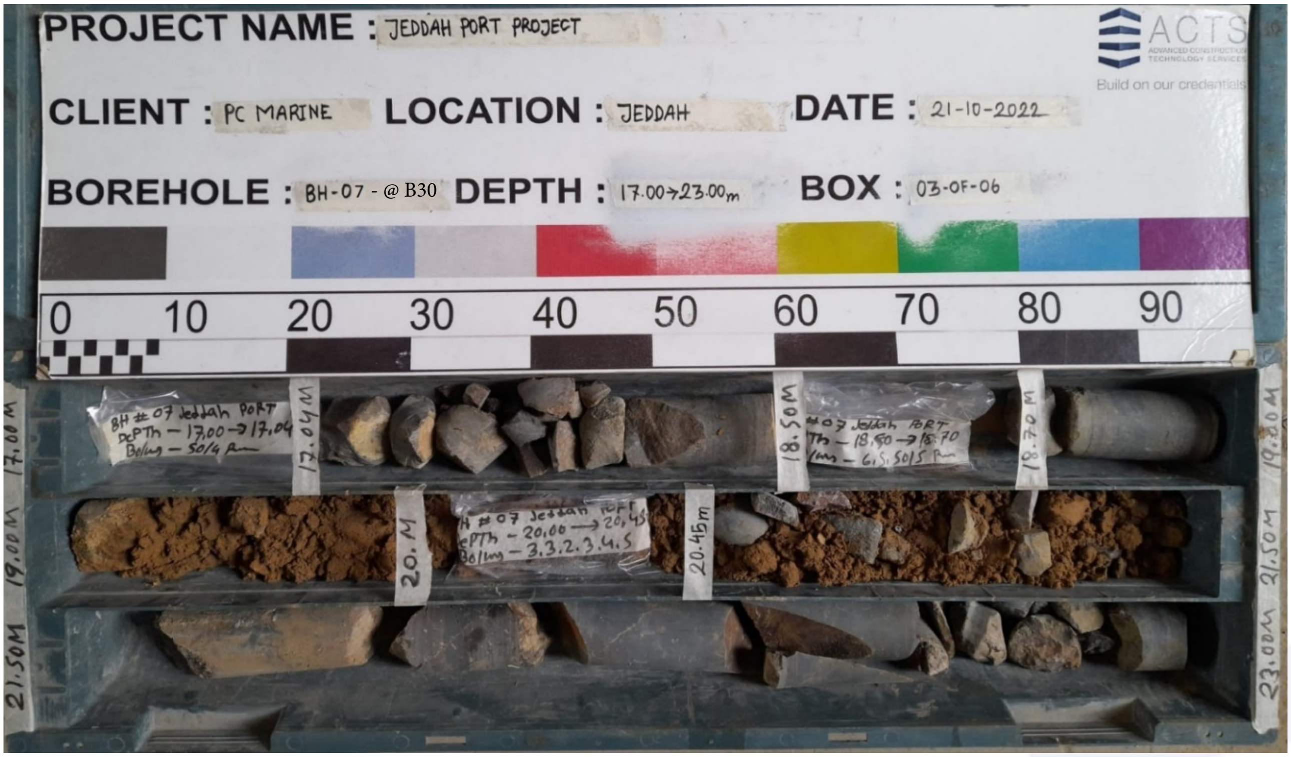

PROJECT NAME : JEDDAH PORT PROJECT
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 26-10-2022
BOREHOLE : BH-08 - @ B31
DEPTH : 20.00→29.00m
BOX : 04-OF-06
0 10 20 30 40 50 60 70 80 90
20.00M
BH#08 Jeddah PoRT
DePTh - 20.00→20.4
Blows - 2.3.3.4.3.5
20.45M
21.50M
BH#08 Jeddah PoRT
DePTh - 21.50→21.95
Blows - 1.2.2.3.2.3
21.95m
23.00M
23.00M
BH#08 Jeddah PoRT
DePTh - 23.00→23.
Blows - 2.2.3.2.3.4
23.45M
24.50M
BH#08 Jeddah PoRT
DePTh - 24.50→24.76
Blows - 3.4.7 50/5 R
24.76M
26.00M
26.00M
BH#08 Jeddah PoRT
DePTh - 26.00→26.1
Blows - 6, 50/4 R
26.11M
27.50M
BH#08 Jeddah PoRT
DePTh - 27.50→27.95
Blows - 2.3.4.3.5.7
27.95M
29.00M

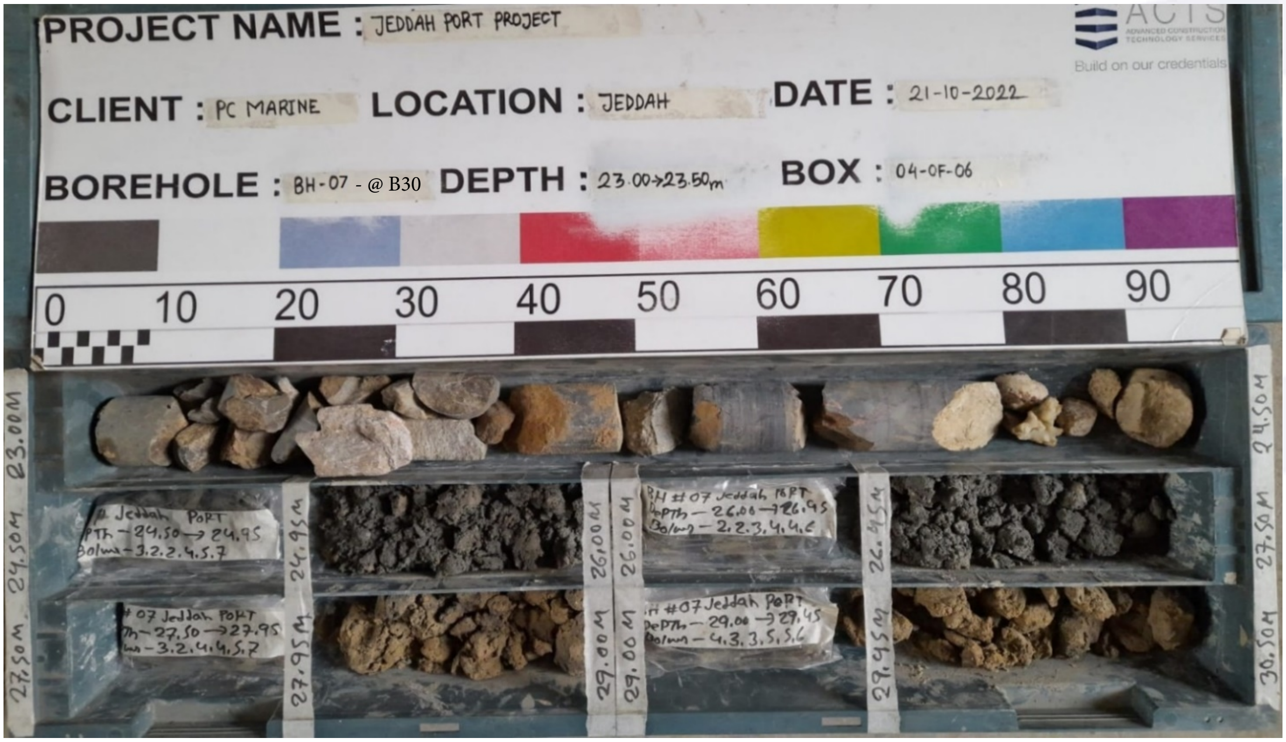

PROJECT NAME : JEDDAH PORT PROJECT
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 26-10-2022
BOREHOLE : BH-08- @ B31
DEPTH : 29.00→38.00m
BOX : 05-OF-06
0 10 20 30 40 50 60 70 80 90
29.00M
29.45M
30.50M
30.95M
32.00M
32.45M
33.50M
33.95M
35.00M
35.45M
36.50M
36.95M
38.00M
BH#08 Jeddah
DePTh – 29.00→29.
Blown – 1.2.2.3.2.3
BH#08
DePTh – 30.50→30.95
Blown – 2.2.3.2.3.2
BH#08 Jeddah
DePTh – 32.00→32.45
Blown – 2.3.3.2.4.3
BH#08 Jeddah PoRT
DePTh – 33.50→33.95
Blown – 2.2.3.2.1.7
BH#08 Jeddah
DePTh – 35.00→35
Blown – 2.1.3.2.3.
BH#08 Jeddah PoRT
DePTh – 36.50→36.95
Blown – 1.1.2.3.3.3

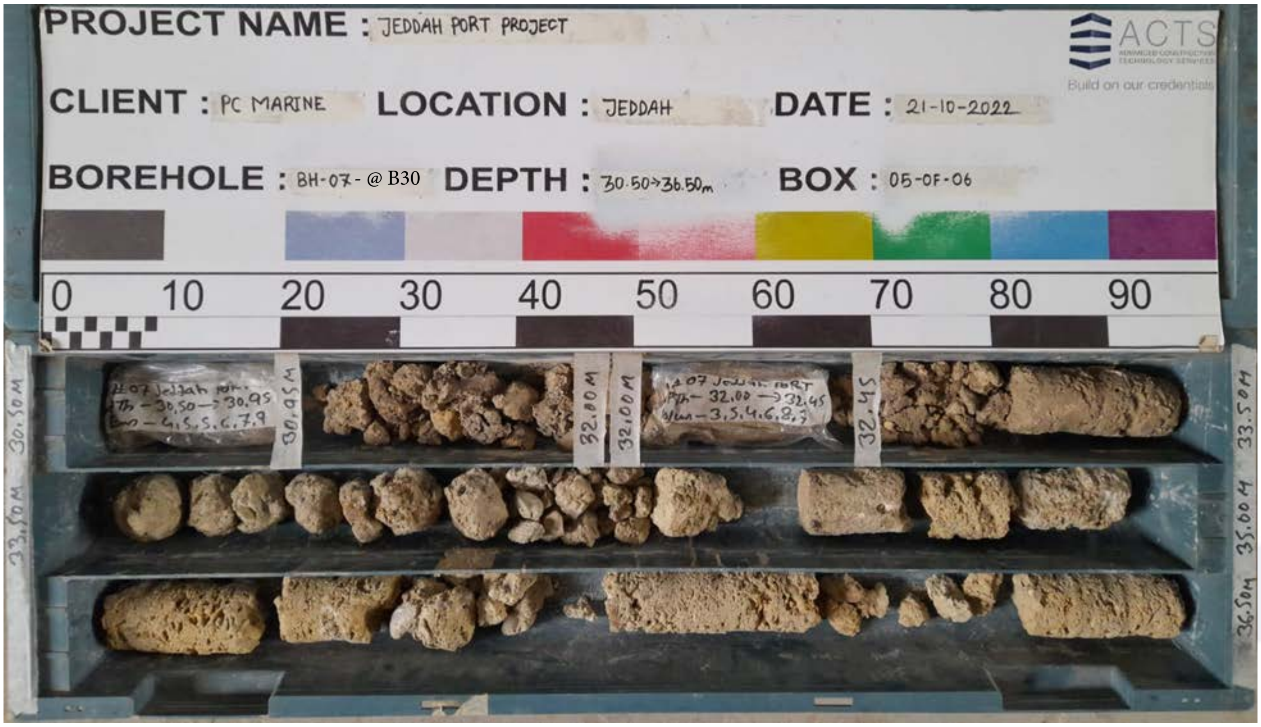

PROJECT NAME : JEDDAH PORT PROJECT
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 26-10-2022
BOREHOLE : BH-08 - @ B31
DEPTH : 38.00→40.00m
BOX : 06-OF-06
0 10 20 30 40 50 60 70 80 90
38.00M
38.45M
39.50M
39.95M
40.00M
BH#08 Jeddah PoRT
DePTh – 38.00→38.45
Blown – 2.2.1.3.3.2.
BH#08 Jeddah PoRT
DePTh – 39.50→39.95
Blown – 1.2.3.2.4.3


PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 21-10-2022
BOREHOLE : BH-07 - @ B30
DEPTH : 0.00→8.00m
BOX : 01-OF-06
0
10
20
30
40
50
60
70
80
90
0.00 M
2.00 M
1.50 M
2.00 M
3.50 M
3.50 M
3.62 M
5.00 M
5.00 M
5.20 M
6.50 M
6.55 m
8.00 M
BH#07 Jeddah PORT
DePTh - 3.50→3.62
Blow - 7.50/..
BH#07 Jeddah PORT
DePTh - 5.00→5.20
Blow - 6.6.50/5 R
BH#07 Jeddah PORT
DePTh - 6.50→6.55
Blow - 50/5 R


PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 21-10-2022
BOREHOLE : BH-07 - @ B30
DEPTH : 8.00→17.00m
BOX : 02-OF-06
0
10
20
30
40
50
60
70
80
90
8.00 M
8.11 M
9.50 M
9.50 M
9.63 M
11.00 M
11.00 M
11.12 M
12.00 M
12.63 M
14.00 M
14.00 M
14.19 M
15.50 M
15.76 M
17.00 M
BH#07 Jeddah PORT
DePTh - 8.00→8.11
Blow - 7.50/4 R
BH#07 Jeddah PORT
DePTh - 9.50→9.63
Blow - 6.50/6 R
BH#07 Jeddah PORT
DePTh - 11.00→11.12
Blow - 6.50/5 R
BH#07 Jeddah PORT
DePTh - 12.50→12.63
Blow - 5.50/6 R
BH#07 Jeddah PORT
DePTh - 14.00→14.19
Blow - 5.6.50/4 R
BH#07 Jeddah PORT
DePTh - 15.50→15.76
Blow - 6.5.4.50/4


PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 21-10-2022
BOREHOLE : BH-07 - @ B30
DEPTH : 17.00→23.00m
BOX : 03-OF-06
0
10
20
30
40
50
60
70
80
90
17.00 M
BH # 07 Jeddah PORT
DePTh – 17.00 → 17.04
Bo/ms – 50/4 P
17.04M
18.50M
H # 07 Jeddah PORT
Th – 18.50 → 18.70
/ms – 6.5.50/5 P
18.70M
19.00M
19.00 M
20. M
H # 07 Jeddah PORT
ePTh – 20.00 → 20.45
Bo/ms – 3.3.2.3.4.5
20.45m
21.50M
21.50M
23.00M


PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 21-10-2022
BOREHOLE : BH-07 - @ B30
DEPTH : 23.00→23.50m
BOX : 04-OF-06
0
10
20
30
40
50
60
70
80
90
23.00M
24.50M
24.50M
Jeddah PORT
PTh – 24.50 → 24.95
Bo/ms – 3.2.2.4.5.7
24.95M
26.00M
26.00M
BH # 07 Jeddah PORT
DePTh – 26.00 → 26.45
Bo/ms – 2.2.3.4.4.6
26.45M
27.50M
27.50M
# 07 Jeddah PORT
Th – 27.50 → 27.95
/ms – 3.2.4.4.5.7
27.95M
29.00M
29.00M
H # 07 Jeddah PORT
DePTh – 29.00 → 29.45
Bo/ms – 4.3.3.5.5.6
29.45M
30.50M

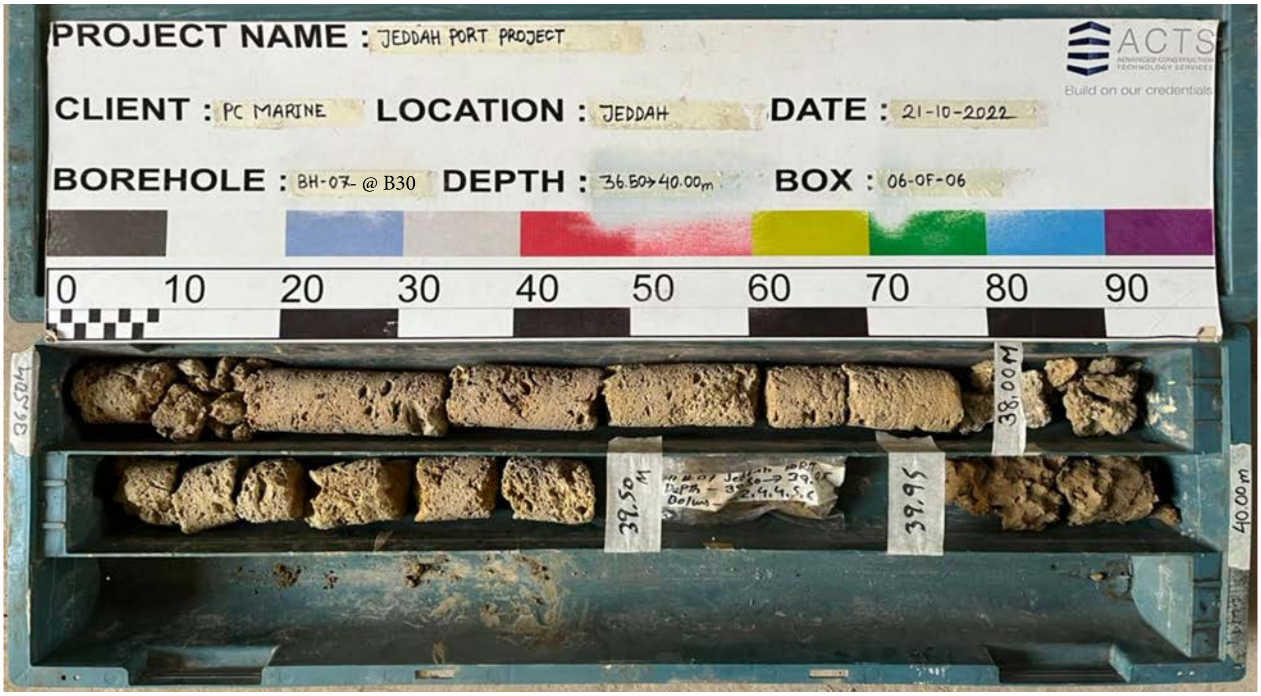


PROJECT NAME : JEDDAH PORT PROJECT

CLIENT : PC MARINE **LOCATION :** JEDDAH **DATE :** 21-10-2022

BOREHOLE : BH-07- @ B30 **DEPTH :** 30.50→36.50m **BOX :** 05-OF-06

ACTS
Build on our credentials
0
10
20
30
40
50
60
70
80
90
30.50M
30.95M
32.00M
32.00M
32.45
33.50M
33.50M
35.00M
36.50M

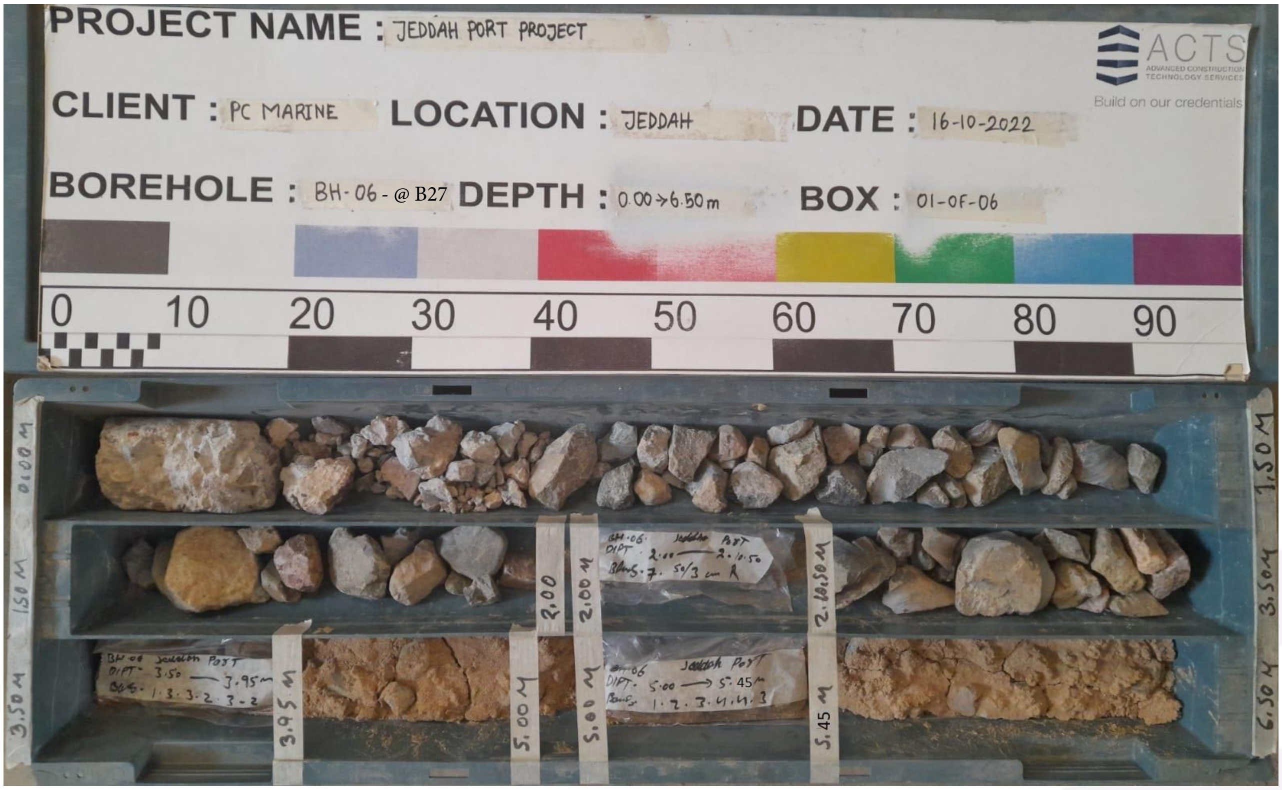


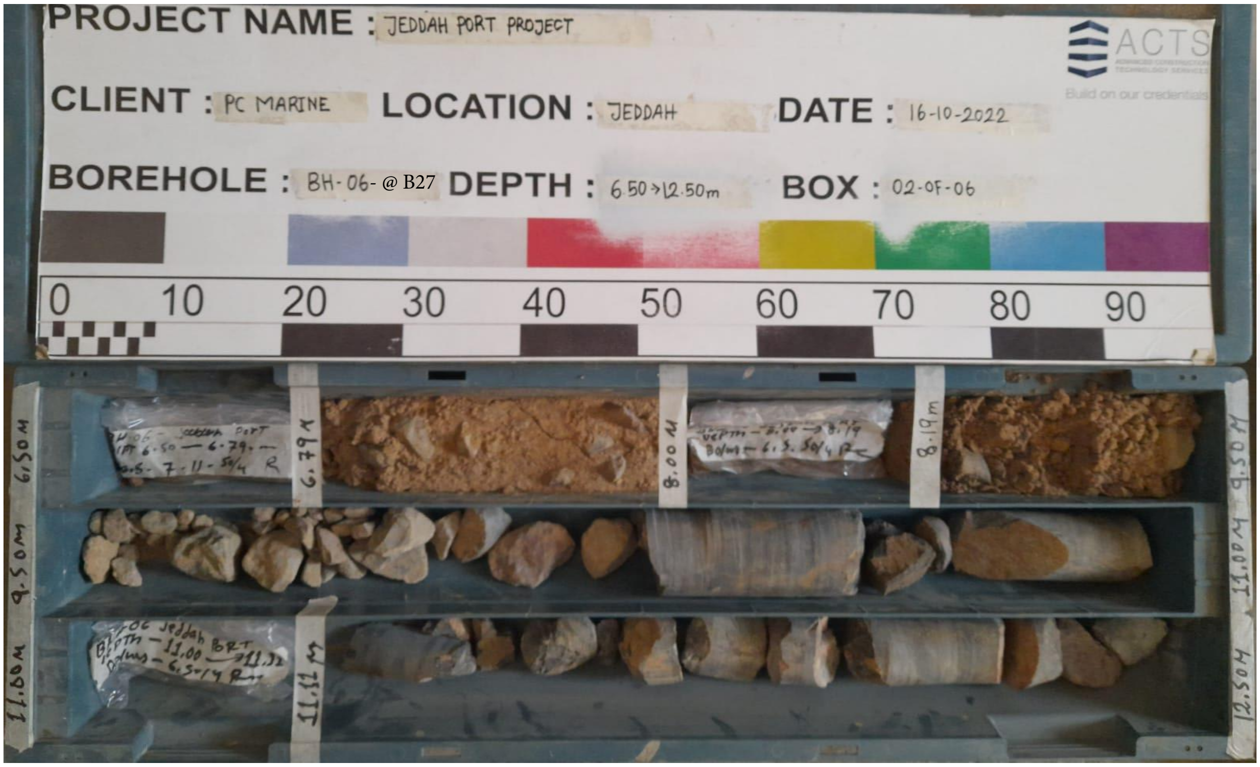
PROJECT NAME : JEDDAH PORT PROJECT

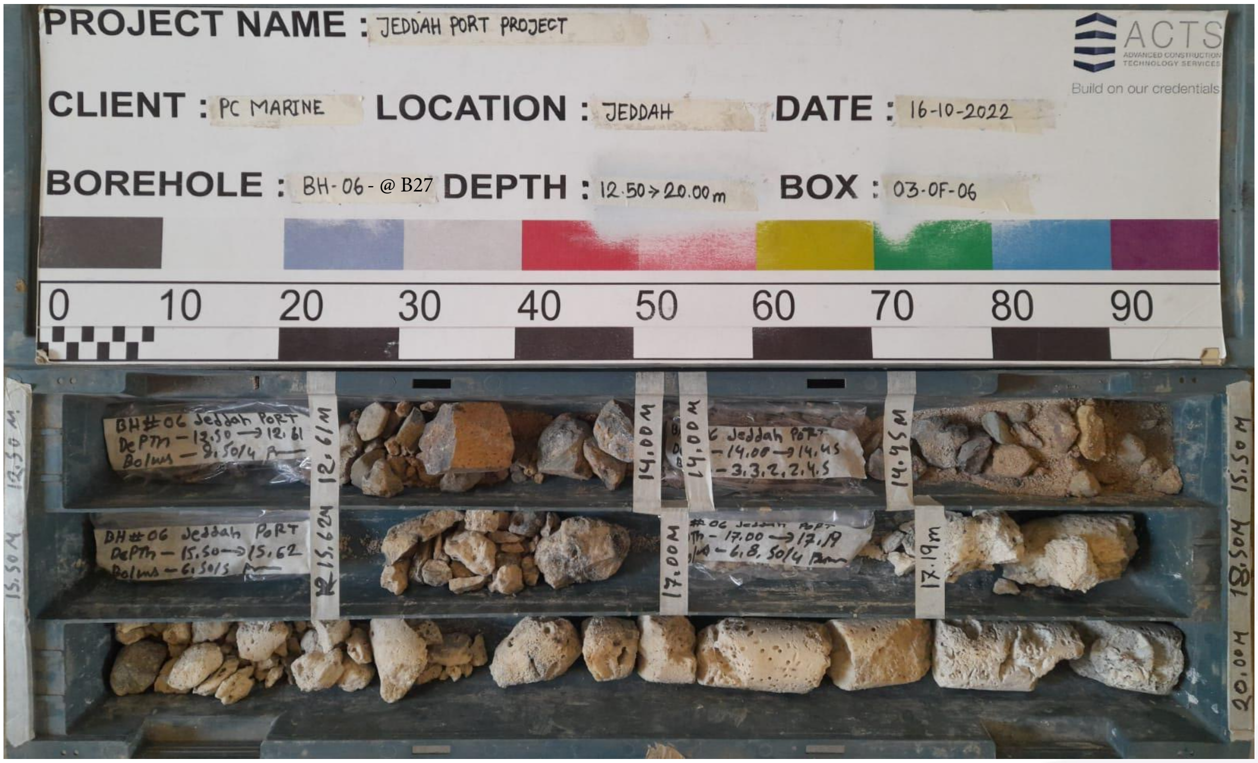
CLIENT : PC MARINE **LOCATION :** JEDDAH **DATE :** 21-10-2022

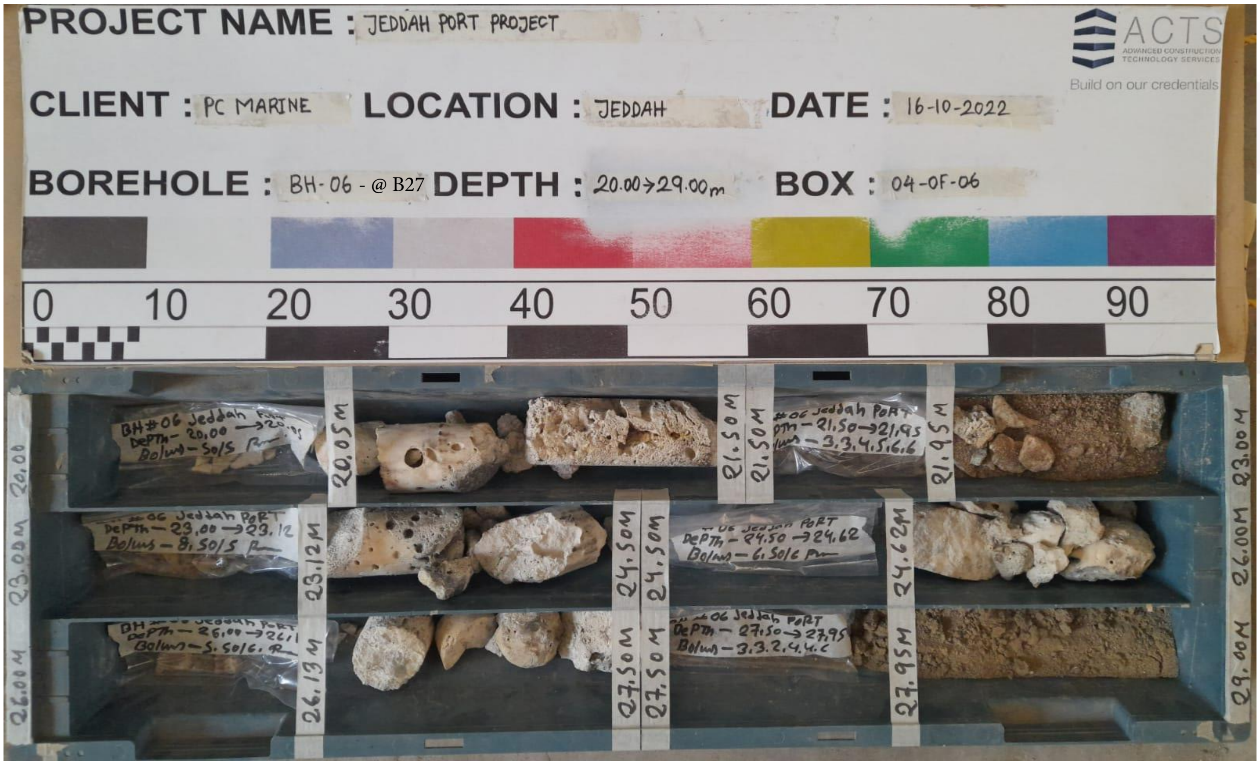
BOREHOLE : BH-07 @ B30 **DEPTH :** 36.50→40.00m **BOX :** 06-OF-06

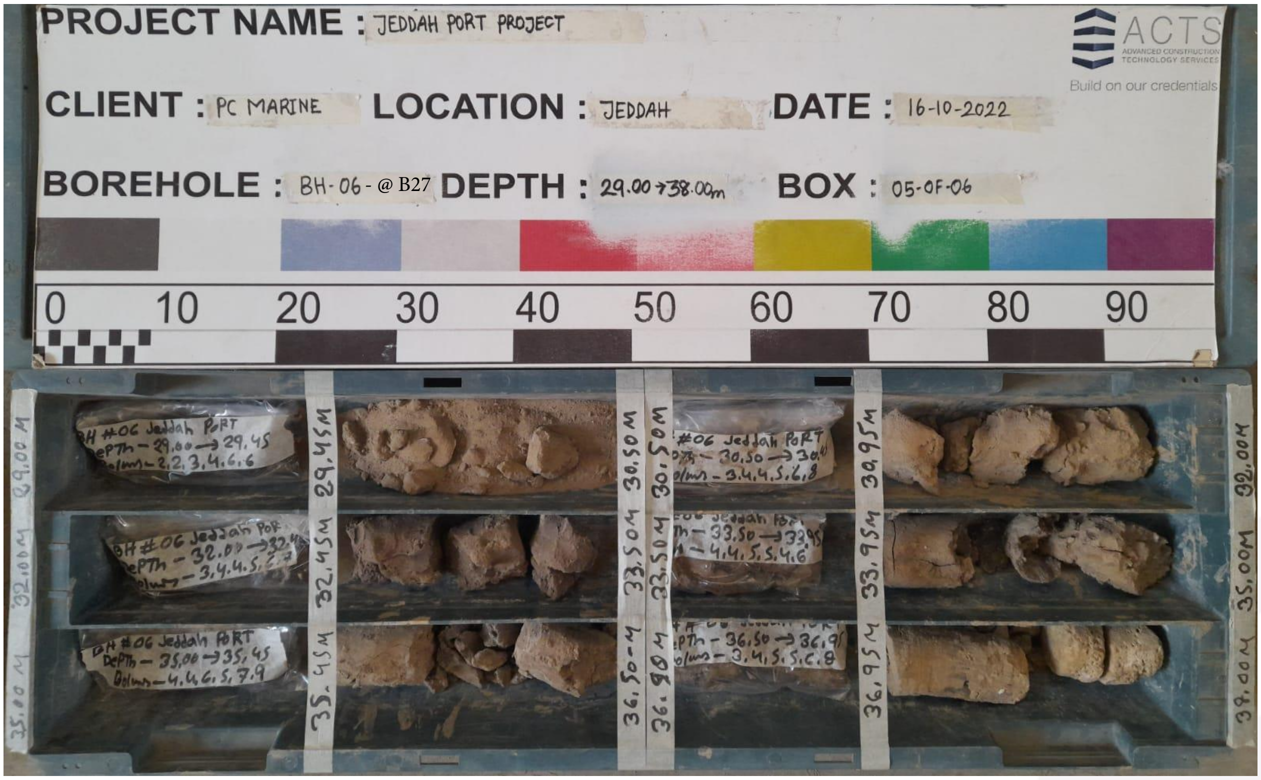
ACTS
Build on our credentials
0
10
20
30
40
50
60
70
80
90
36.50M
38.00M
39.50M
39.95
40.00m

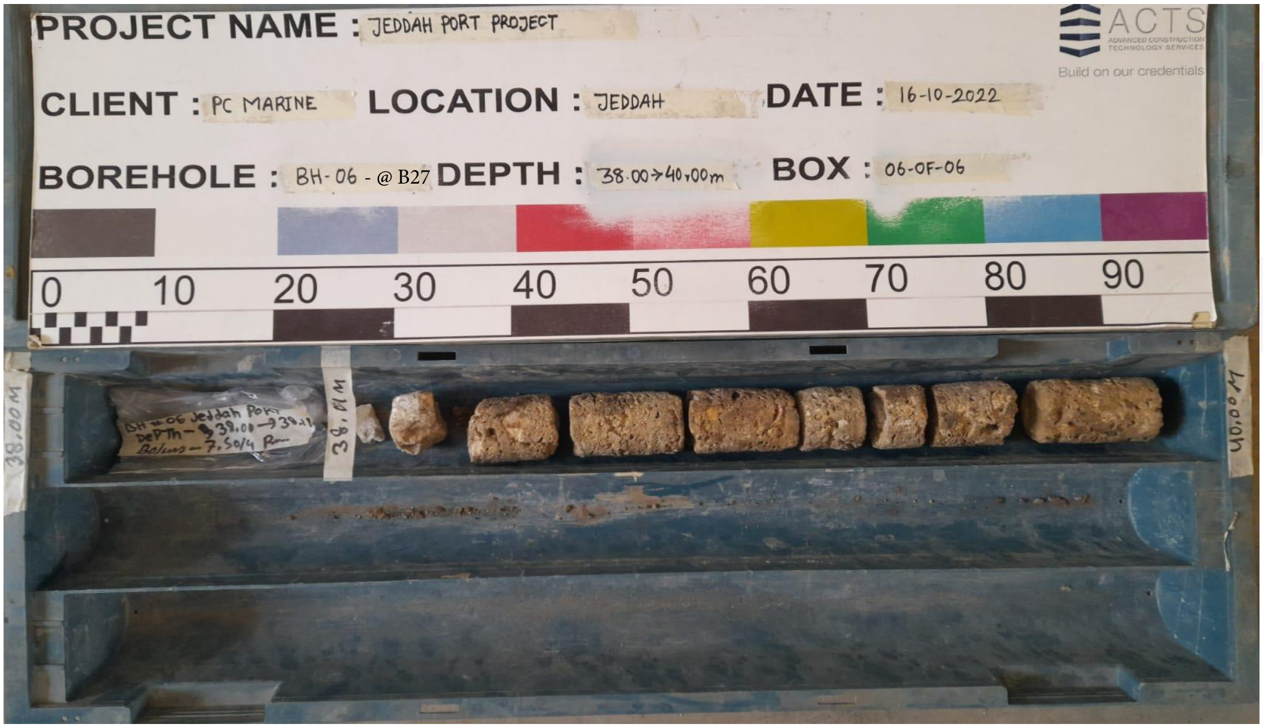

PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 16-10-2022
BOREHOLE : BH-06 - @ B27
DEPTH : 0.00→6.50m
BOX : 01-OF-06
0
10
20
30
40
50
60
70
80
90
0.00M
1.50M
1.50M
3.50M
3.50M
6.50M
2.00
2.00M
2.45OM
3.95M
5.00M
5.00M
5.45M

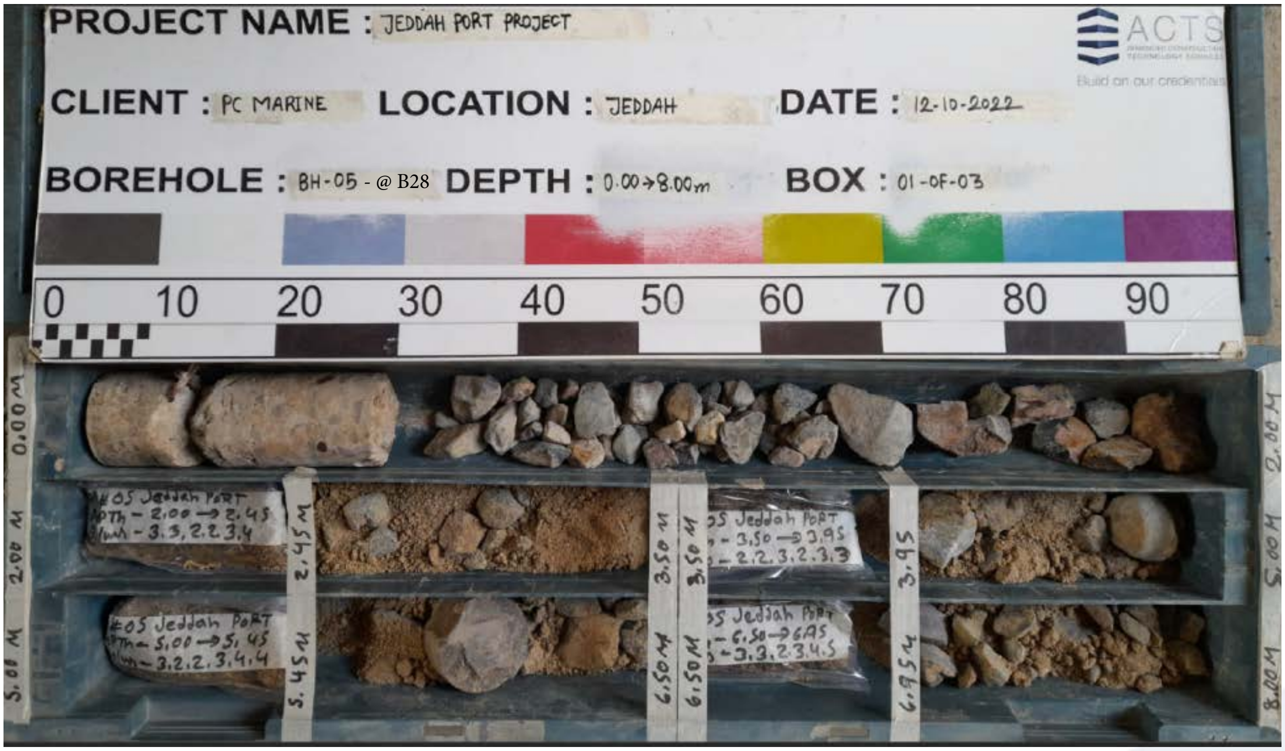

PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 16-10-2022
BOREHOLE : BH-06- @ B27
DEPTH : 6.50→12.50m
BOX : 02-OF-06
0
10
20
30
40
50
60
70
80
90
6.50M
9.50M
9.50M
11.00M
11.00M
12.50M
6.79M
8.00M
8.19M
11.32M


PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 16-10-2022
BOREHOLE : BH-06 - @ B27
DEPTH : 12.50→20.00m
BOX : 03-OF-06
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0 10 20 30 40 50 60 70 80 90
BH#06 Jeddah PoRT DePTh — 12.50 → 12.61 Blows — 8.50/4
12.50 M
12.61M
14.00M
14.00M
14.00 → 14.45 3,3,2,2,4,5
14.95M
15.50M
BH#06 Jeddah PoRT DePTh — 15.50 → 15.62 Blows — 6.50/5
15.62M
17.00M
17.00 → 17.19 6,8, 50/4
17.19m
15.50M
18.50M
20.00M


PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 16-10-2022
BOREHOLE : BH-06 - @ B27
DEPTH : 20.00→29.00m
BOX : 04-OF-06
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0 10 20 30 40 50 60 70 80 90
BH#06 Jeddah PoRT DePTh — 20.00 → 20.05 Blows — 50/5
20.00
20.05M
21.50M
21.50M
#06 Jeddah PoRT DePTh — 21.50 → 21.95 Blows — 3,3,4,5,6,6
21.95M
23.00M
23.00M
#06 Jeddah PoRT DePTh — 23.00 → 23.12 Blows — 8, 50/5
23.12M
24.50M
24.50M
DePTh — 24.50 → 24.62 Blows — 6, 50/6
24.62M
26.00M
26.00M
DePTh — 26.00 → 26.11 Blows — 5, 50/6
26.13M
27.50M
27.50M
#06 Jeddah PoRT DePTh — 27.50 → 27.95 Blows — 3,3,2,4,4,6
27.95M
29.00M


PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 16-10-2022
BOREHOLE : BH-06 - @ B27
DEPTH : 29.00→38.00m
BOX : 05-OF-06
0 10 20 30 40 50 60 70 80 90
29.00M
BH #06 Jeddah PoRT DePTh - 29.00 → 29.45 Blows - 2,2,3,4,6,6
29.45M
30.50M
30.50M
BH #06 Jeddah PoRT DePTh - 30.50 → 30.95 Blows - 3,4,4,5,6,8
30.95M
32.00M
32.00M
BH #06 Jeddah PoRT DePTh - 32.00 → 32.45 Blows - 3,4,4,5,7
32.45M
33.50M
33.50M
BH #06 Jeddah PoRT DePTh - 33.50 → 33.95 Blows - 4,4,5,5,4,6
33.95M
35.00M
35.00M
BH #06 Jeddah PoRT DePTh - 35.00 → 35.45 Blows - 4,4,6,5,7,9
35.45M
36.50M
36.50M
BH #06 Jeddah PoRT DePTh - 36.50 → 36.95 Blows - 3,4,5,5,6,8
36.95M
38.00M


PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 16-10-2022
BOREHOLE : BH-06 - @ B27
DEPTH : 38.00→40.00m
BOX : 06-OF-06
0 10 20 30 40 50 60 70 80 90
38.00M
BH #06 Jeddah PoRT DePTh - 38.00 → 38.11 Blows - 7,50/4 R
38.11M
40.00M

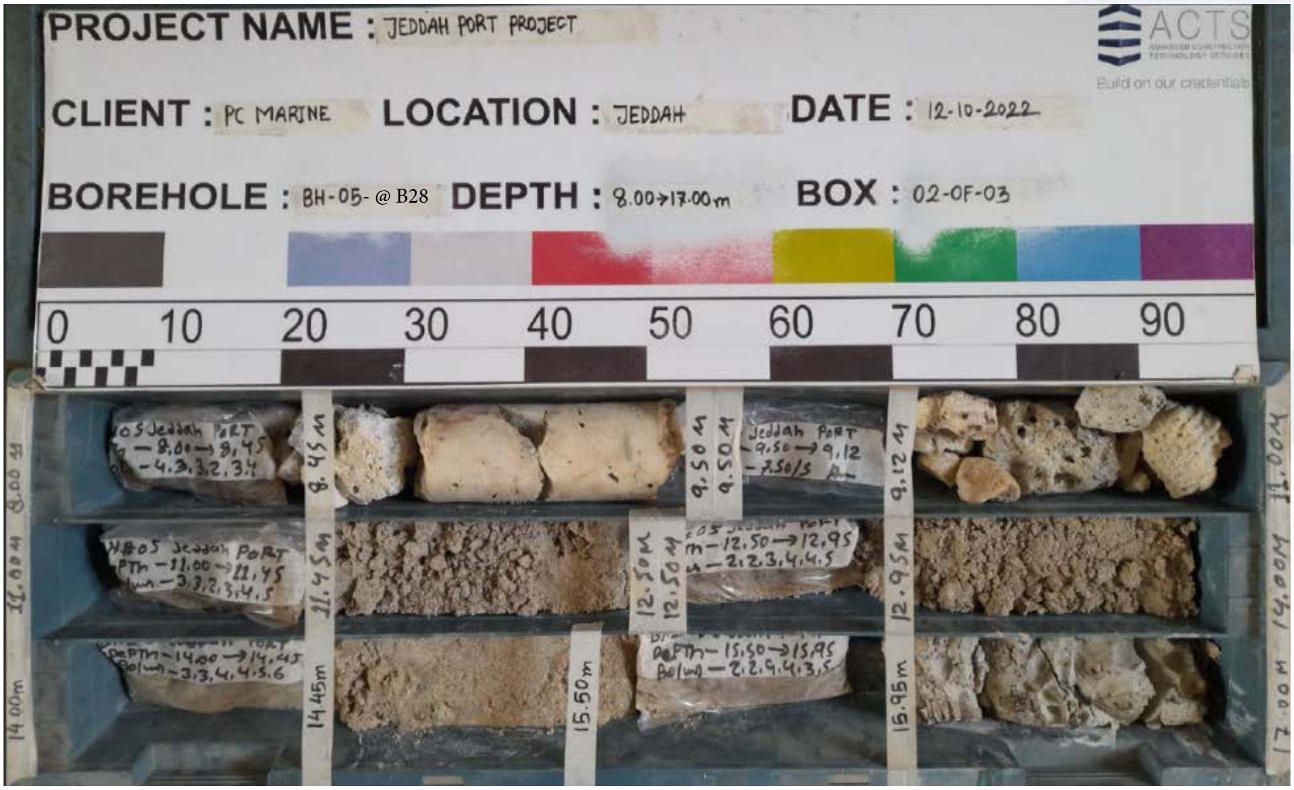


PROJECT NAME : JEDDAH PORT PROJECT

CLIENT : PC MARINE **LOCATION :** JEDDAH **DATE :** 12-10-2022

BOREHOLE : BH-05 - @ B28 **DEPTH :** 0.00→8.00m **BOX :** 01-OF-03

0
10
20
30
40
50
60
70
80
90
0.00M
2.00M
2.00M
5.00M
5.00M
8.00M
2.45M
5.45M
3.50M
3.50M
6.50M
6.50M
3.95
6.95M

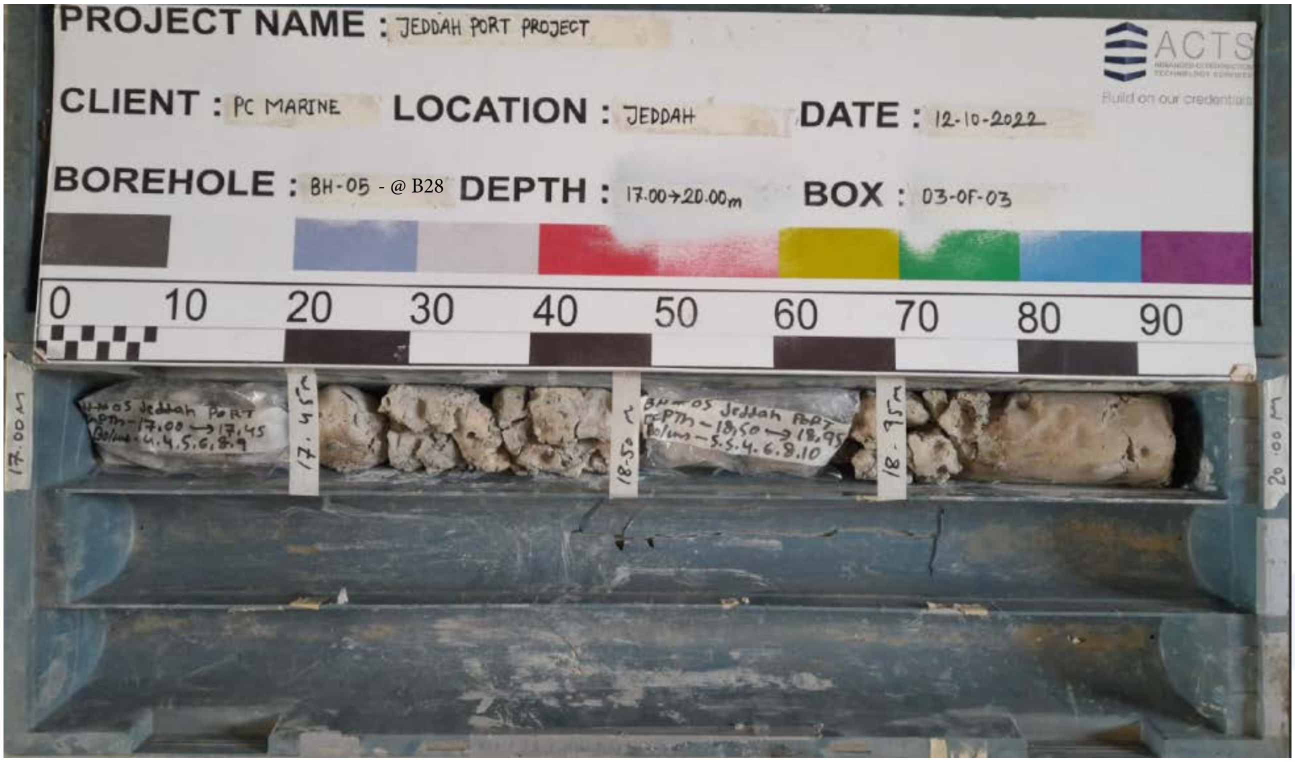


PROJECT NAME : JEDDAH PORT PROJECT

CLIENT : PC MARINE **LOCATION :** JEDDAH **DATE :** 12-10-2022

BOREHOLE : BH-05- @ B28 **DEPTH :** 8.00→17.00m **BOX :** 02-OF-03

0
10
20
30
40
50
60
70
80
90
8.00M
11.00M
11.00M
14.00M
14.00m
17.00M
8.45M
11.45M
14.45m
9.50M
9.50M
12.50M
12.50M
15.50m
9.12M
12.95M
15.95m

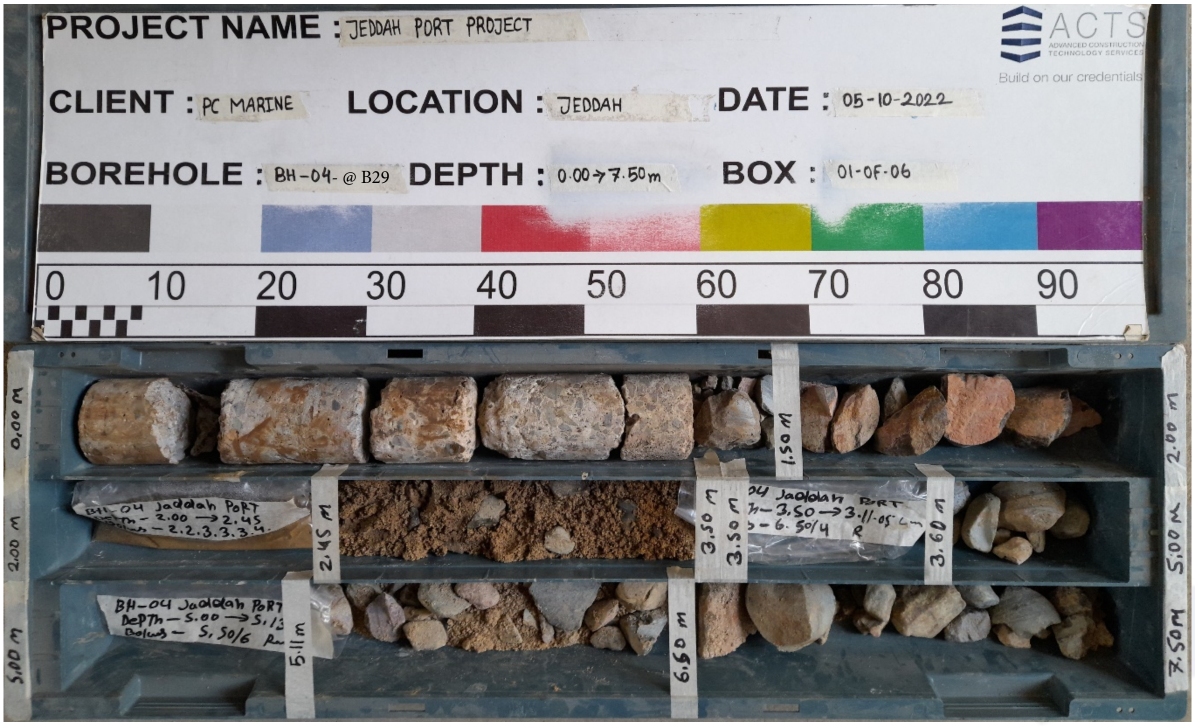


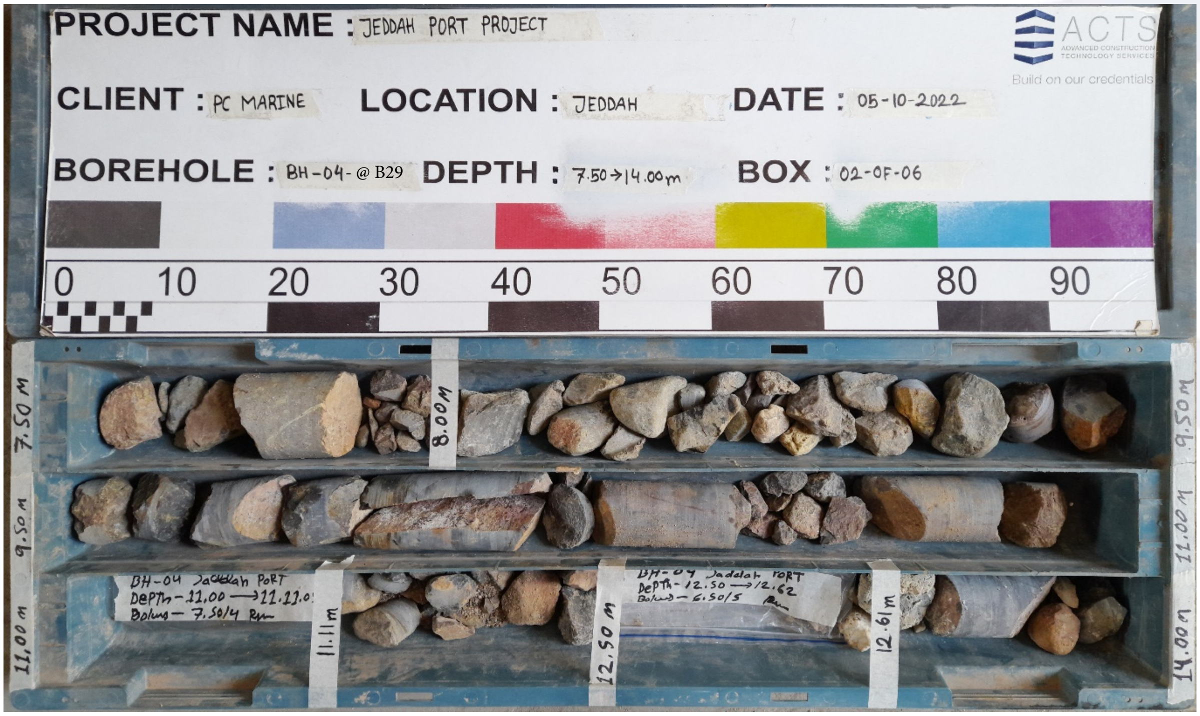
PROJECT NAME : JEDDAH PORT PROJECT

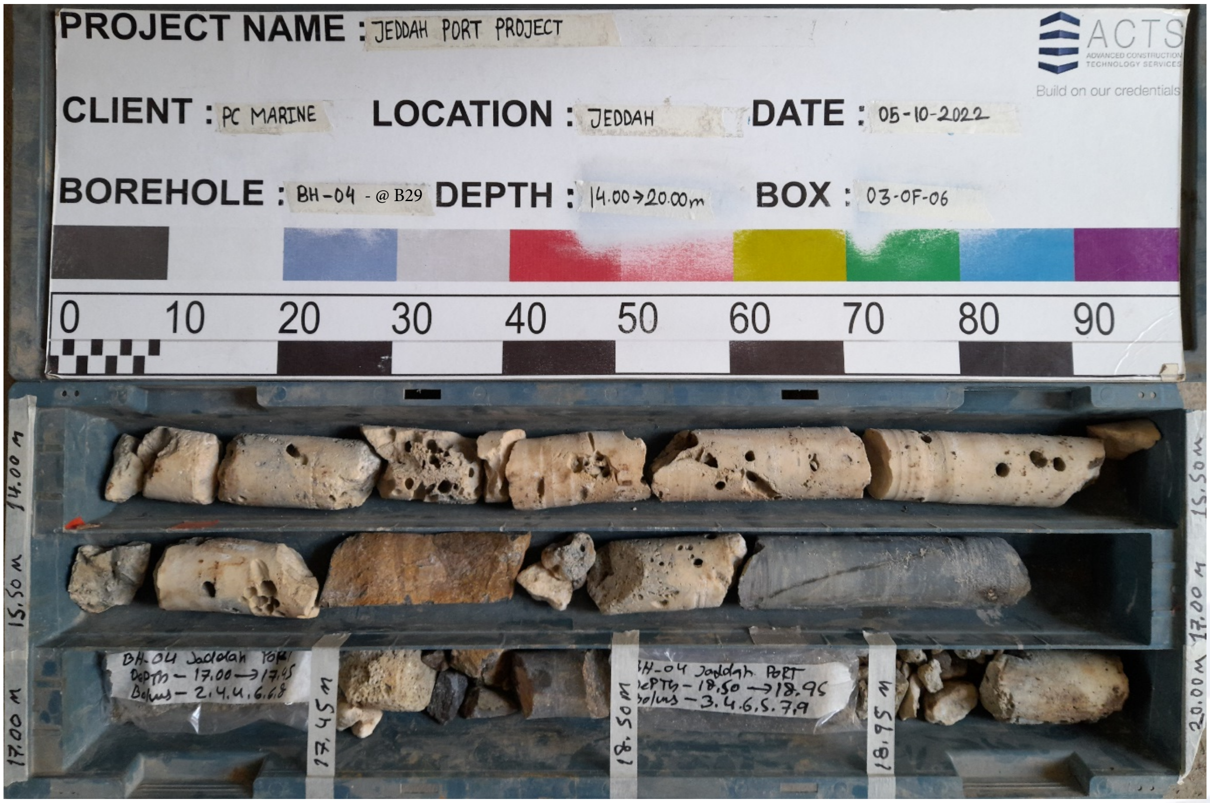
CLIENT : PC MARINE **LOCATION :** JEDDAH **DATE :** 12-10-2022

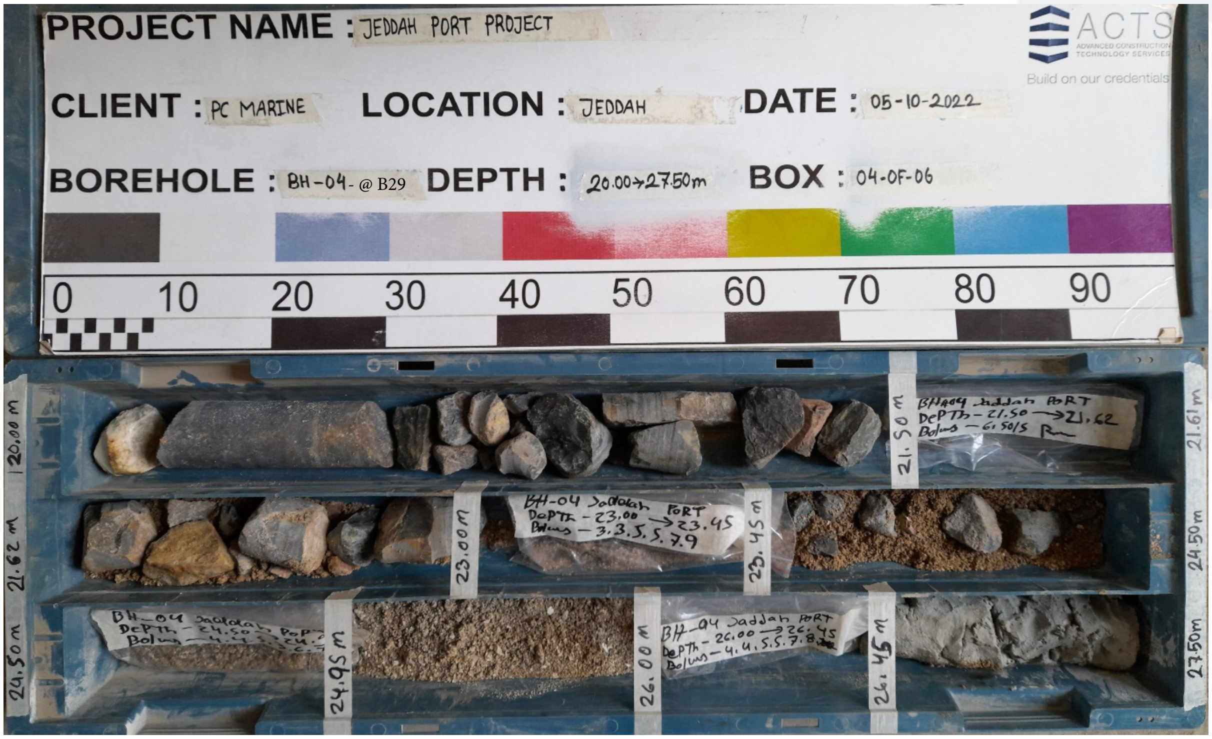
BOREHOLE : BH-05 - @ B28 **DEPTH :** 17.00→20.00m **BOX :** 03-OF-03

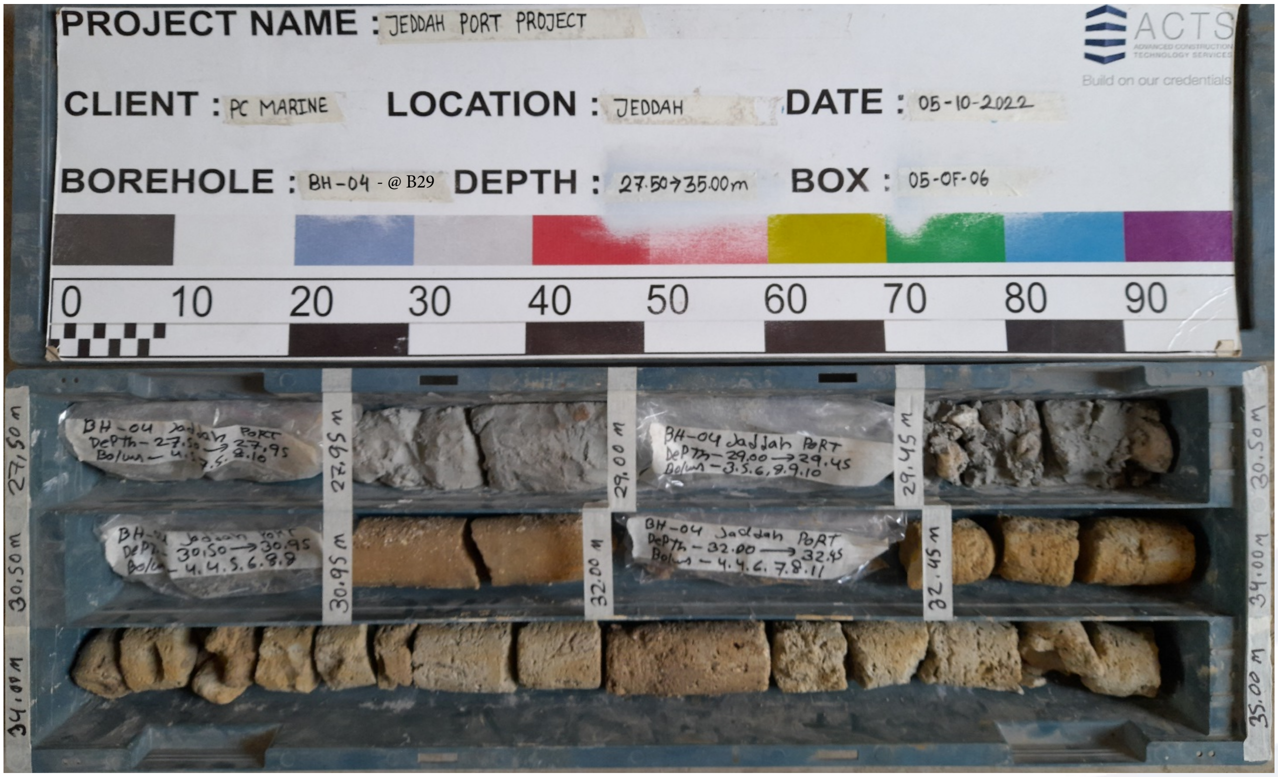
ACTS
Build on our credentials
0
10
20
30
40
50
60
70
80
90
17.00 m
BH-05 Jeddah PORT
DEPTH-17.00→17.45
Blows-4.4.5.6.8.9
17.45m
18.50 m
BH-05 Jeddah PORT
DEPTH-18.50→18.95
Blows-5.5.4.6.8.10
18.95m
20.00 m

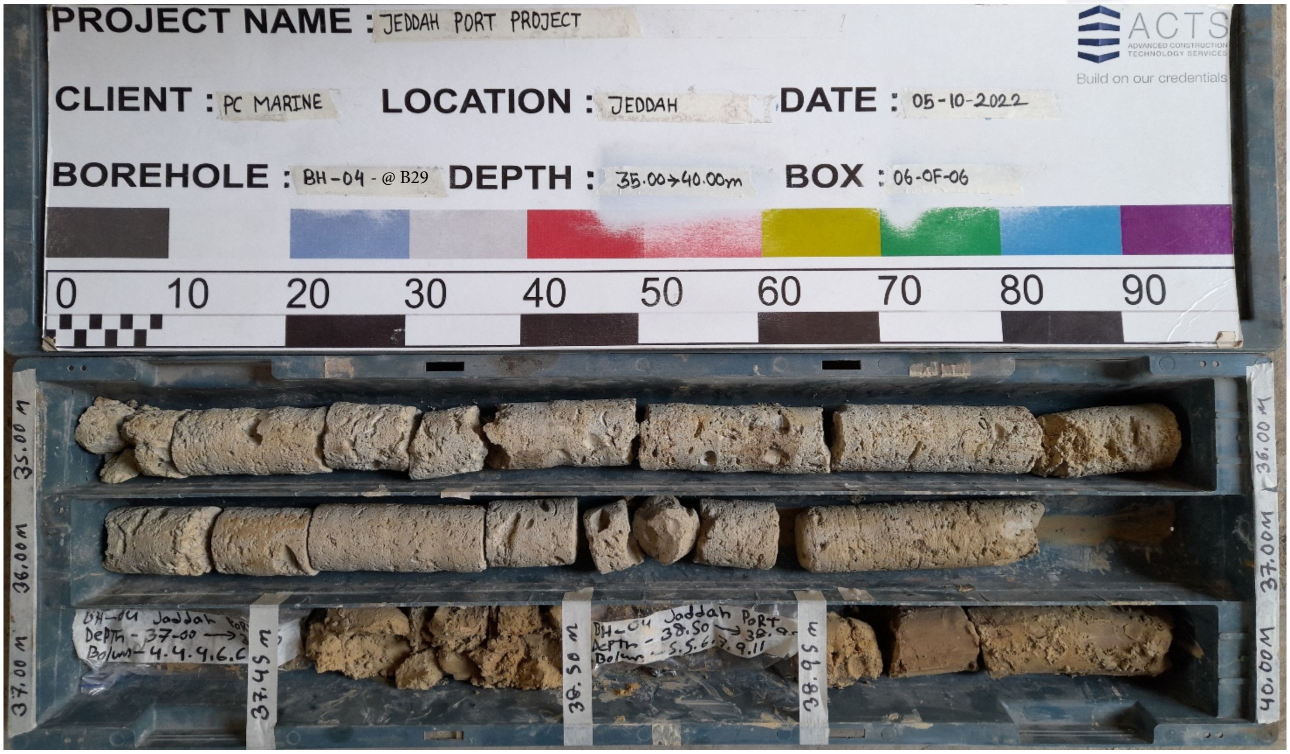

PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 05-10-2022
BOREHOLE : BH-04- @ B29
DEPTH : 0.00→7.50m
BOX : 01-OF-06
ACTS
Build on our credentials
0
10
20
30
40
50
60
70
80
90
0.00 m
1.50 m
2.00 m
2.00 m
2.45 m
3.50 m
3.50 m
3.60 m
5.00 m
5.00 m
5.11 m
6.60 m
7.50 m
BH-04 Jaddah PoRT
DePTh - 2.00 → 2.45
Bolws - 2.2.3.3.3.4.
BH-04 Jaddah PoRT
DePTh - 3.50 → 3.11-05
Bolws - 6.50/4
BH-04 Jaddah PoRT
DePTh - 5.00 → 5.11
Bolws - 5.50/6

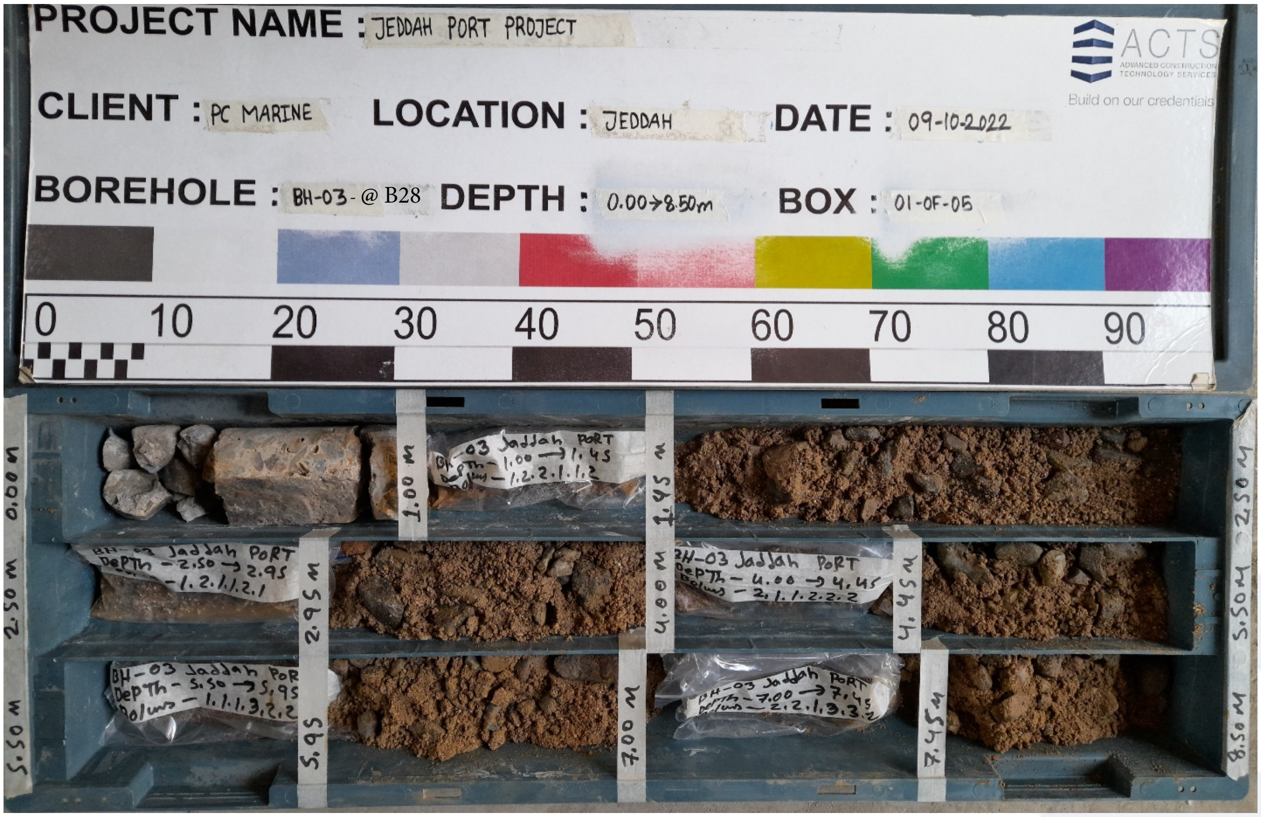

PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 05-10-2022
BOREHOLE : BH-04- @ B29
DEPTH : 7.50→14.00m
BOX : 02-OF-06
ACTS
Build on our credentials
0
10
20
30
40
50
60
70
80
90
7.50 M
8.00 M
9.50 M
9.50 M
11.00 M
11.00 m
11.11 m
12.50 m
12.61 m
14.00 m
BH-04 Jaddah PoRT
DePTh - 11.00 → 11.11
Bolws - 7.50/4
BH-04 Jaddah PoRT
DePTh - 12.50 → 12.62
Bolws - 6.50/5

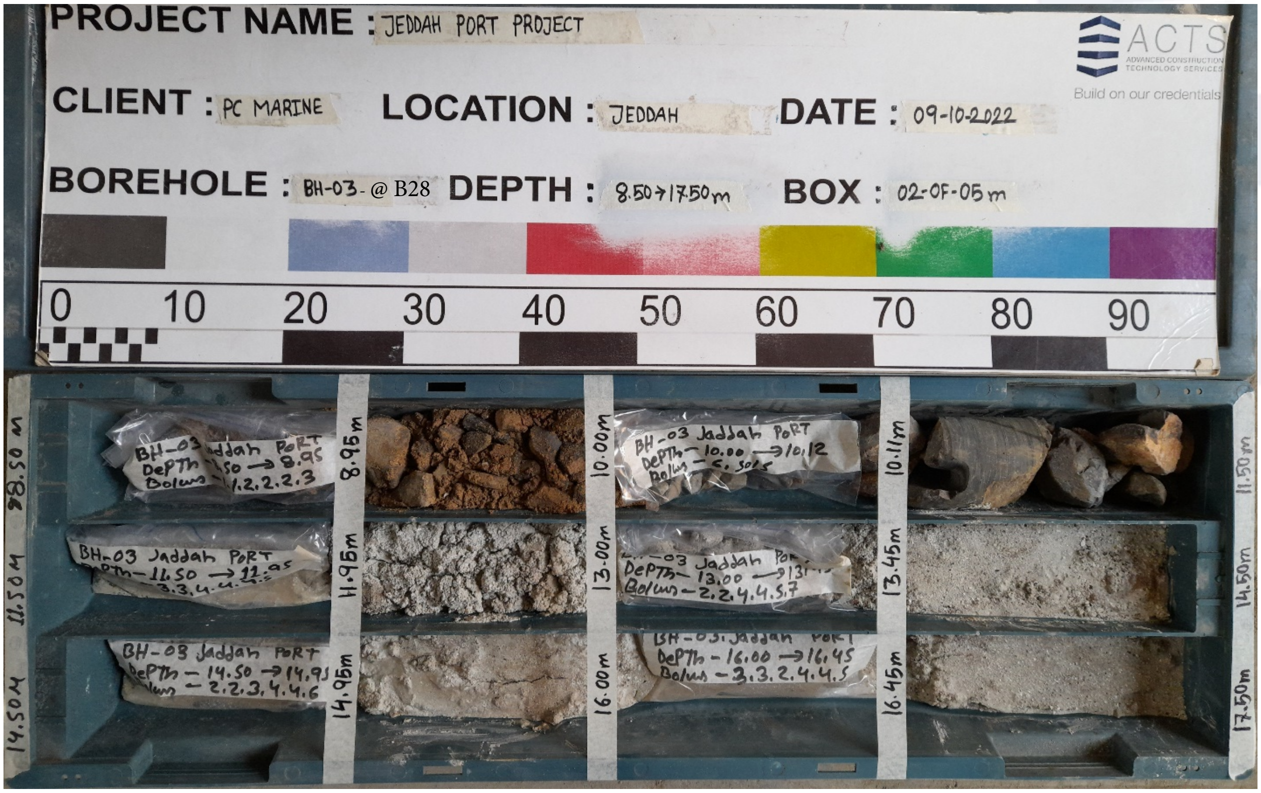

PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 05-10-2022
BOREHOLE : BH-04 - @ B29
DEPTH : 14.00→20.00m
BOX : 03-OF-06
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0 10 20 30 40 50 60 70 80 90
14.00 m
15.50 m
15.50 m
17.00 m
17.00 m
20.00 m
BH-04 Jaddah Port
DePTh – 17.00 → 17.45
Bolws – 2.4.4.6.6.8
17.45 m
18.50 m
BH-04 Jaddah PoRT
DePTh – 18.50 → 18.95
Bolws – 3.4.6.5.7.9
18.95 m

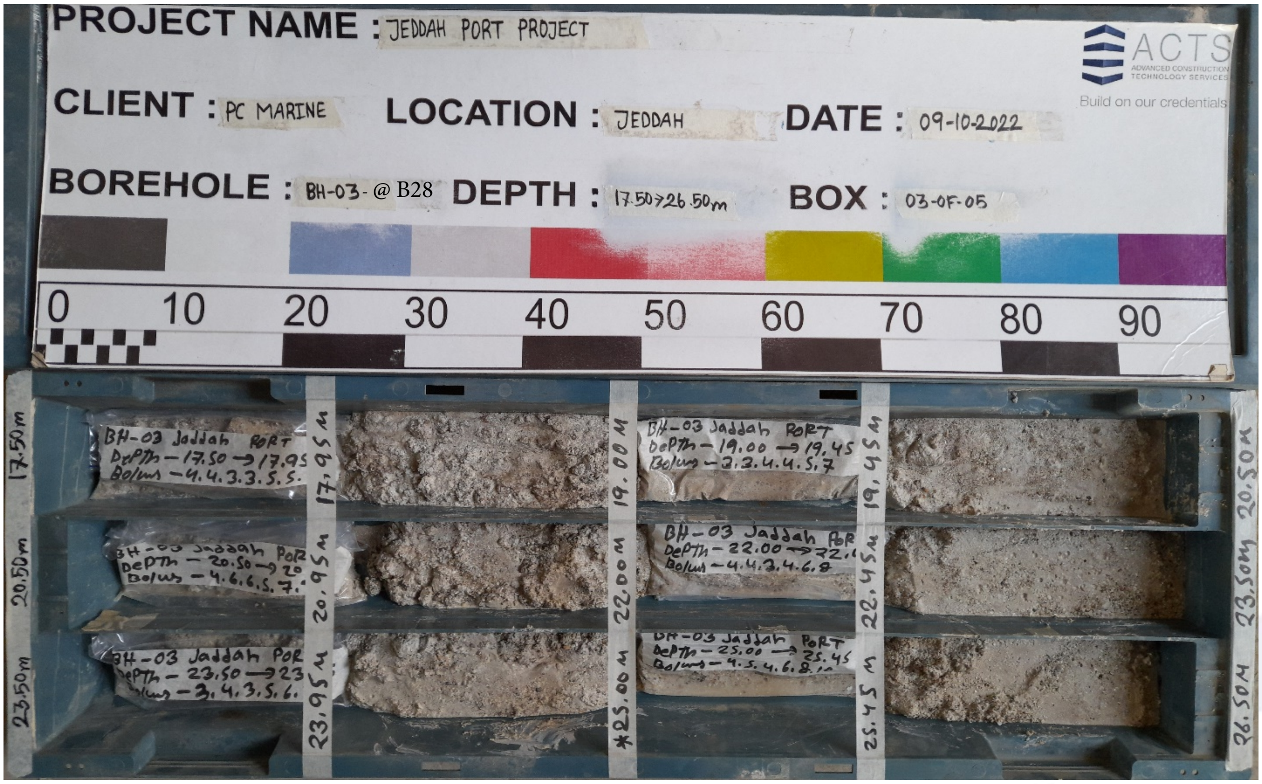

PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 05-10-2022
BOREHOLE : BH-04- @ B29
DEPTH : 20.00→27.50m
BOX : 04-OF-06
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0 10 20 30 40 50 60 70 80 90
20.00 m
21.50 m
BH-04 Jaddah PoRT
DePTh – 21.50 → 21.62
Bolws – 61.50/5
21.61 m
21.62 m
23.00 m
BH-04 Jaddah PoRT
DePTh – 23.00 → 23.45
Bolws – 3.3.5.5.7.9
23.45 m
24.50 m
24.50 m
BH-04 Jaddah PoRT
DePTh – 24.50 → 24.95
24.95 m
26.00 m
BH-04 Jaddah PoRT
DePTh – 26.00 → 26.45
Bolws – 4.4.5.5.7.8
26.45 m
27.50m

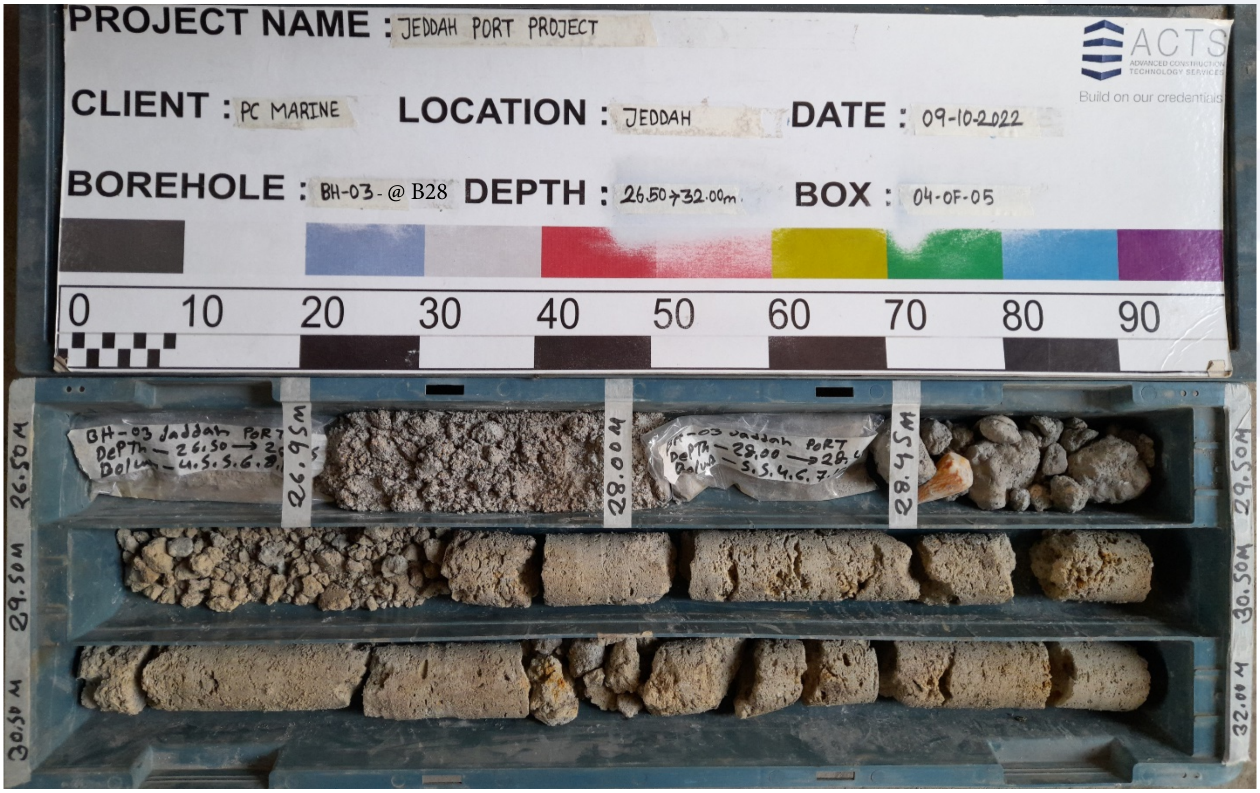

PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 05-10-2022
BOREHOLE : BH-04 - @ B29
DEPTH : 27.50→35.00m
BOX : 05-OF-06
0
10
20
30
40
50
60
70
80
90
27.50 m
BH-04 Jaddah PoRT
DePTh - 27.50 → 27.95
Bolun - 4.5.7.5.8.10
27.95 m
29.00 m
BH-04 Jaddah PoRT
DePTh - 29.00 → 29.45
Bolun - 3.5.6, 8.9.10
29.45 m
30.50 m
30.50 m
BH-04 Jaddah PoRT
DePTh - 30.50 → 30.95
Bolun - 4.4.5.6.8.8
30.95 m
32.00 m
BH-04 Jaddah PoRT
DePTh - 32.00 → 32.45
Bolun - 4.4.6.7.8.11
32.45 m
34.00 m
34.00 m
35.00 m

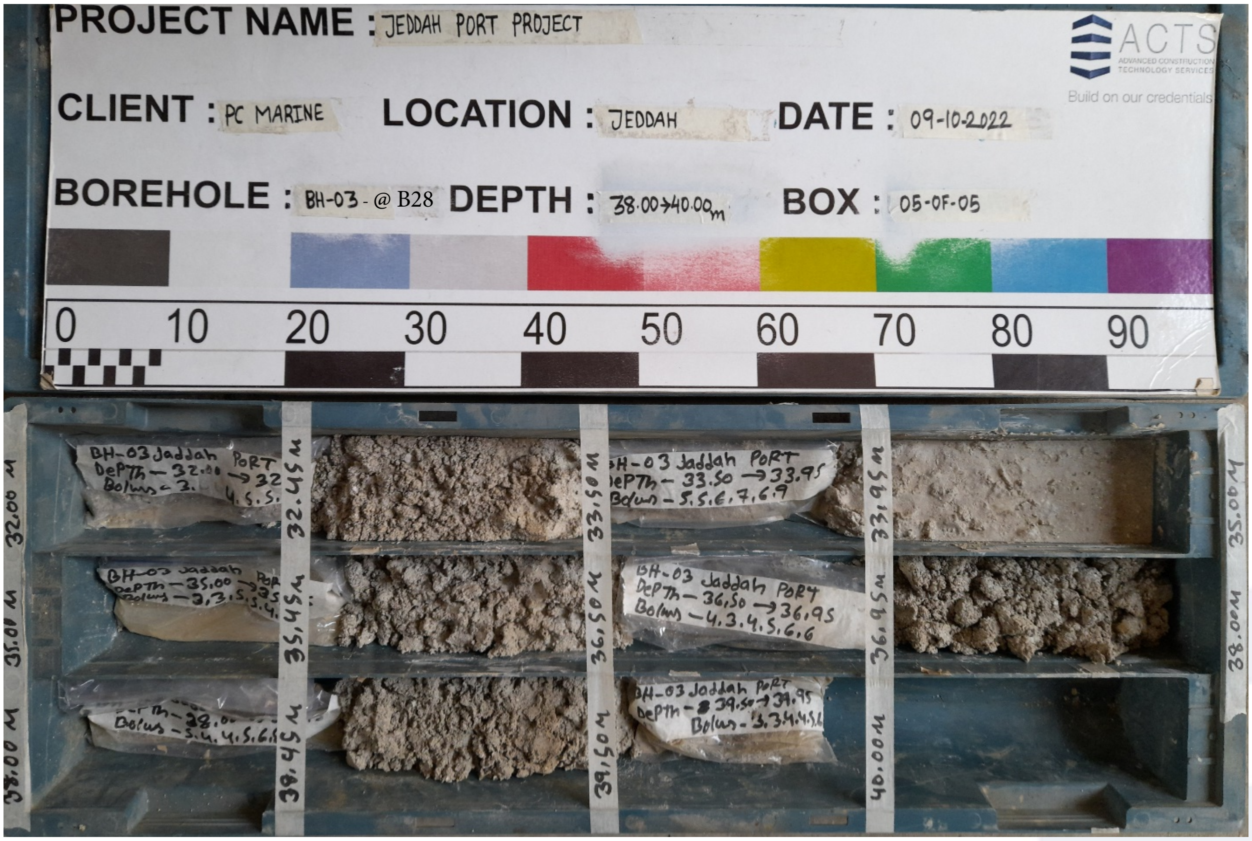

PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 05-10-2022
BOREHOLE : BH-04 - @ B29
DEPTH : 35.00→40.00m
BOX : 06-OF-06
0
10
20
30
40
50
60
70
80
90
35.00 M
36.00 M
36.00 M
37.00 M
37.00 m
BH-04 Jaddah PoRT
DePTh - 37.00 →
Bolun - 4.4.4.6.C
37.45 m
38.50 m
BH-04 Jaddah PoRT
DePTh - 38.50 → 38.9
Bolun - 5.5.6.7.9.11
38.95 m
40.00 M


PROJECT NAME : JEDDAH PORT PROJECT
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 09-10-2022
BOREHOLE : BH-03 @ B28
DEPTH : 0.00→8.50m
BOX : 01-OF-05
0
10
20
30
40
50
60
70
80
90
0.00 m
1.00 m
BH-03 Jaddah PoRT DePTh – 1.00 → 1.45 Bolws – 1.2.2.1.1.2
1.45 m
2.50 m
2.50 m
BH-03 Jaddah PoRT DePTh – 2.50 → 2.95 -1.2.1.1.2.1
2.95 m
4.00 m
BH-03 Jaddah PoRT DePTh – 4.00 → 4.45 Bolws – 2.1.1.2.2.2
4.45 m
5.50 m
5.50 m
BH-03 Jaddah PoR DePTh – 5.50 → 5.95 Bolws – 1.1.1.3.2.2
5.95
7.00 m
BH-03 Jaddah PoRT DePTh – 7.00 → 7.45 Bolws – 2.2.1.3.3.2
7.45 m
8.50 m


PROJECT NAME : JEDDAH PORT PROJECT
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 09-10-2022
BOREHOLE : BH-03 @ B28
DEPTH : 8.50→17.50m
BOX : 02-OF-05m
0
10
20
30
40
50
60
70
80
90
8.50 m
BH-03 Jaddah PoRT DePTh 8.50 → 8.95 Bolws 1.2.2.2.3
8.95m
10.00m
BH-03 Jaddah PoRT DePTh – 10.00 → 10.12 Bolws – 6. 50/5
10.11m
11.50m
11.50 M
BH-03 Jaddah PoRT DePTh – 11.50 → 11.95
11.95m
13.00m
BH-03 Jaddah PoRT DePTh – 13.00 → 13 Bolws – 2.2.4.4.5.7
13.45m
14.50m
14.50M
BH-03 Jaddah PoRT DePTh – 14.50 → 14.95 Bolws – 2.2.3.4.4.6
14.95m
16.00m
BH-03 Jaddah PoRT DePTh – 16.00 → 16.45 Bolws – 3.3.2.4.4.5
16.45m
17.50m


PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 09-10-2022
BOREHOLE : BH-03- @ B28
DEPTH : 17.50→26.50m
BOX : 03-OF-05
ACTS
Build on our credentials
0 10 20 30 40 50 60 70 80 90
17.50m
17.95 M
19.00 M
19.45 M
20.50M
20.50m
20.95 M
22.00 M
22.45 M
23.50M
23.50m
23.95 M
25.00 M
25.45 M
26.50M
BH-03 Jaddah PORT DePTh - 17.50 → 17.95 Bolws - 4.4.3.3.5.5.
BH-03 Jaddah PORT DePTh - 19.00 → 19.45 Bolws - 2.3.4.4.5.7
BH-03 Jaddah PoR DePTh - 22.00 → 22.45 Bolws - 4.4.3.4.6.8
BH-03 Jaddah PORT DePTh - 25.00 → 25.45 Bolws - 4.5.4.6.8.


PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 09-10-2022
BOREHOLE : BH-03- @ B28
DEPTH : 26.50→32.00m
BOX : 04-OF-05
ACTS
Build on our credentials
0 10 20 30 40 50 60 70 80 90
26.50M
26.95M
28.00M
28.45M
29.50M
29.50M
30.50M
30.50M
32.00M
BH-03 Jaddah PORT DePTh - 26.50 → 26.95 Bolws - 4.5.5.6.8.
BH-03 Jaddah PORT DePTh - 28.00 → 28.45 Bolws - 5.5.4.6.7.

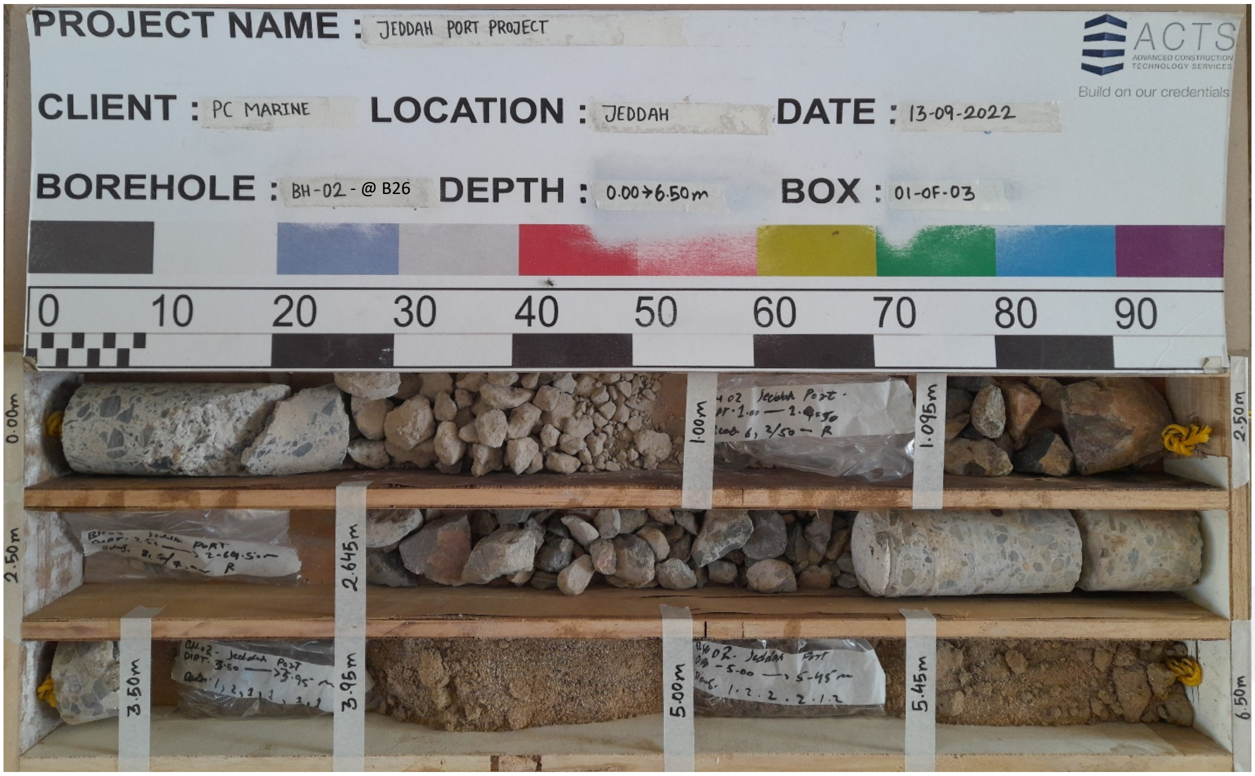


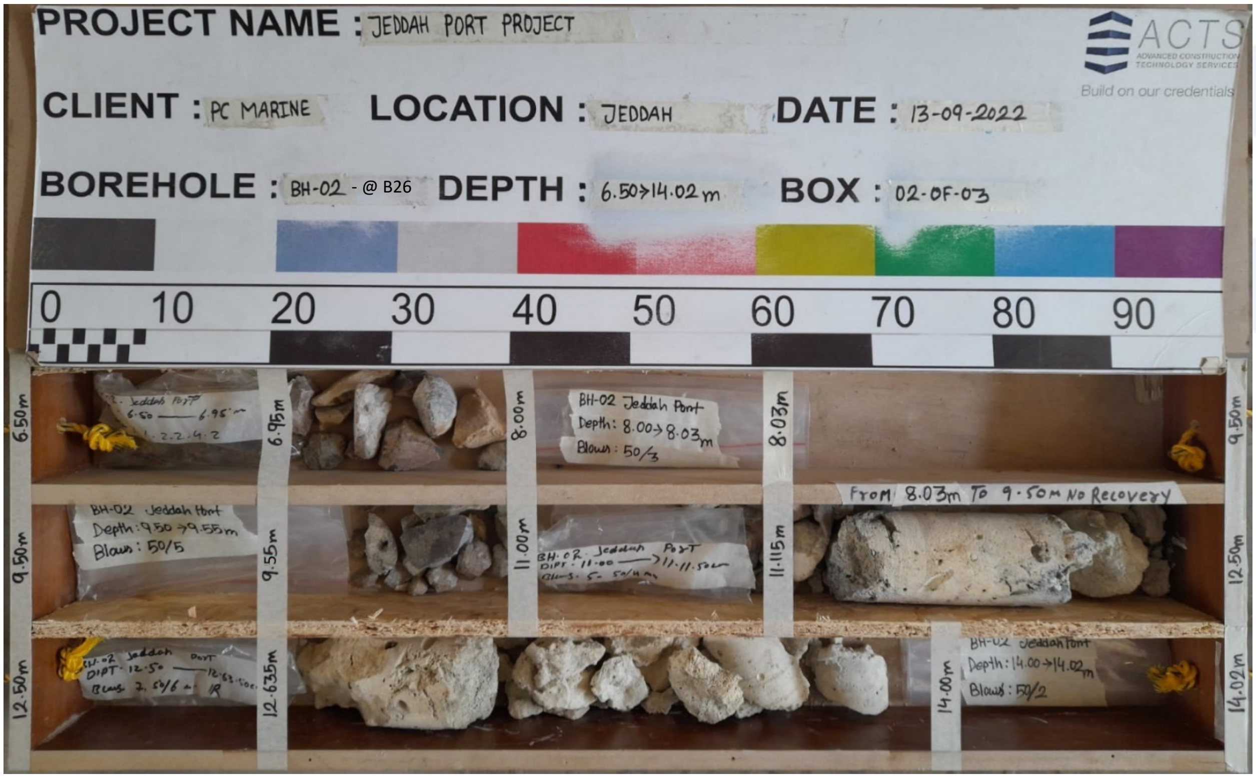
PROJECT NAME : JEDDAH PORT PROJECT

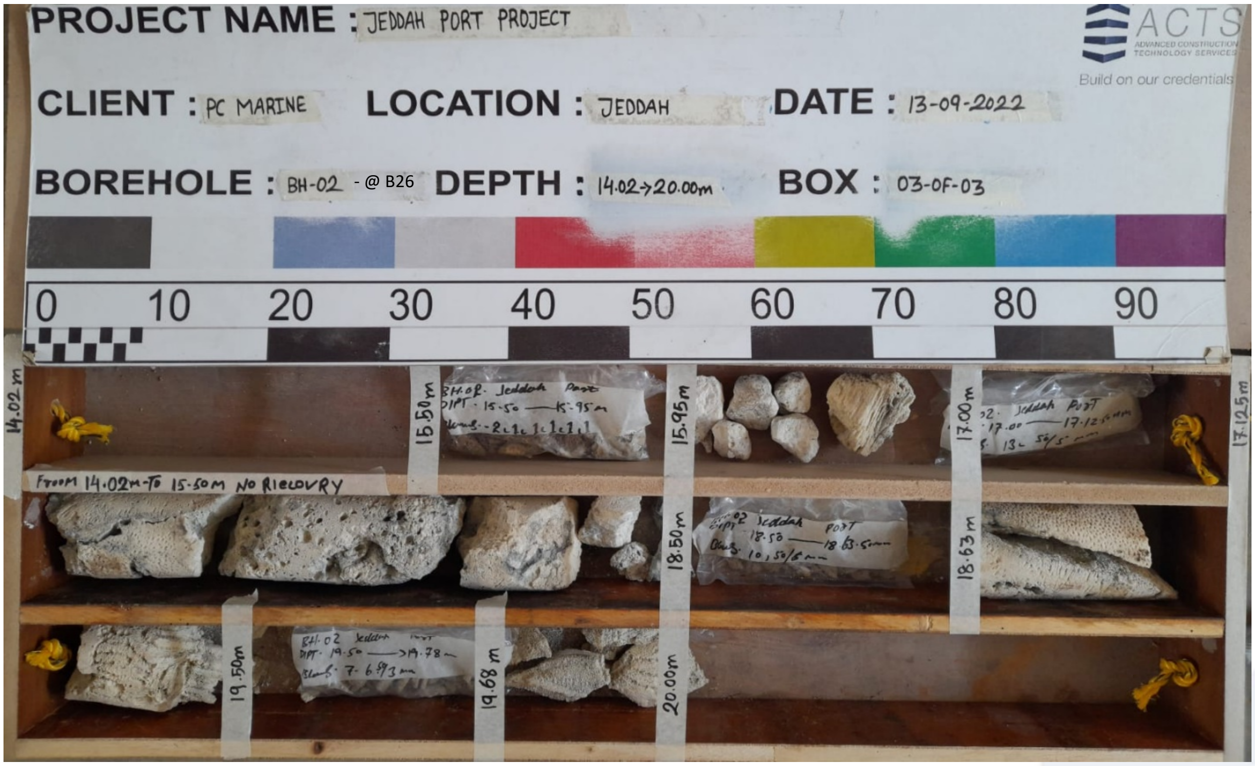
CLIENT : PC MARINE **LOCATION :** JEDDAH **DATE :** 09-10-2022

BOREHOLE : BH-03 - @ B28 **DEPTH :** 38.00→40.00m **BOX :** 05-OF-05

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0
10
20
30
40
50
60
70
80
90
32.00 M
BH-03 Jaddah PoRT
DePTh – 32.00 → 32
Bolws – 3. 4.5.5
32.45 M
33.50 M
BH-03 Jaddah PoRT
DePTh – 33.50 → 33.95
Bolws – 5.5.6.7.6.9
33.95 M
35.00 M
35.00 M
BH-03 Jaddah PoRT
DePTh – 35.00 → 35
Bolws – 3.3.5.3.4.
35.45 M
36.50 M
BH-03 Jaddah PoRT
DePTh – 36.50 → 36.95
Bolws – 4.3.4.5.6.6
36.95 M
38.00 M
38.00 M
DePTh – 38.0
Bolws – 3.4.4.5.6.6
39.45 M
39.50 M
BH-03 Jaddah PoRT
DePTh – 39.50 → 39.95
Bolws – 3.3.4.4.5.6
40.00 M


PROJECT NAME : JEDDAH PORT PROJECT
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 13-09-2022
BOREHOLE : BH-02 - @ B26
DEPTH : 0.00→6.50m
BOX : 01-OF-03
0
10
20
30
40
50
60
70
80
90
0.00m
1.00m
BH 02 Jeddah Port
DPT. 1.00 — 2.450
Blows 6, 2/50 — R
1.095m
2.50m
2.50m
BH-02 Jeddah Port
DPT. 2.50 → 2.64.50m
Blows. 8, 50/4 — R
2.645m
3.50m
BH-02 Jeddah Port
DIPT. 3.50 → 3.95m
Blows. 1, 2, 1, 1, 1, 1
3.95m
5.00m
BH 02 Jeddah Port
DPT 5.00 → 5.45m
Blows. 1.2.2.2.1.2
5.45m
6.50m


PROJECT NAME : JEDDAH PORT PROJECT
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 13-09-2022
BOREHOLE : BH-02 - @ B26
DEPTH : 6.50→14.02m
BOX : 02-OF-03
0
10
20
30
40
50
60
70
80
90
6.50m
Jeddah Port
6.50 — 6.95m
1.2.2.4.2
6.95m
8.00m
BH-02 Jeddah Port
Depth: 8.00→8.03m
Blows: 50/3
8.03m
9.50m
FROM 8.03m TO 9.50m NO RECOVERY
9.50m
BH-02 Jeddah Port
Depth: 9.50→9.55m
Blows: 50/5
9.55m
11.00m
BH-02 Jeddah Port
DIPT. 11.00 → 11.11.50m
Blows. 5, 50/4m
11.115m
12.50m
12.50m
BH-02 Jeddah Port
DIPT. 12.50 — 12.63.50m
Blows 7, 50/6 — R
12.635m
14.00m
BH-02 Jeddah Port
Depth: 14.00→14.02m
Blows: 50/2
14.02m

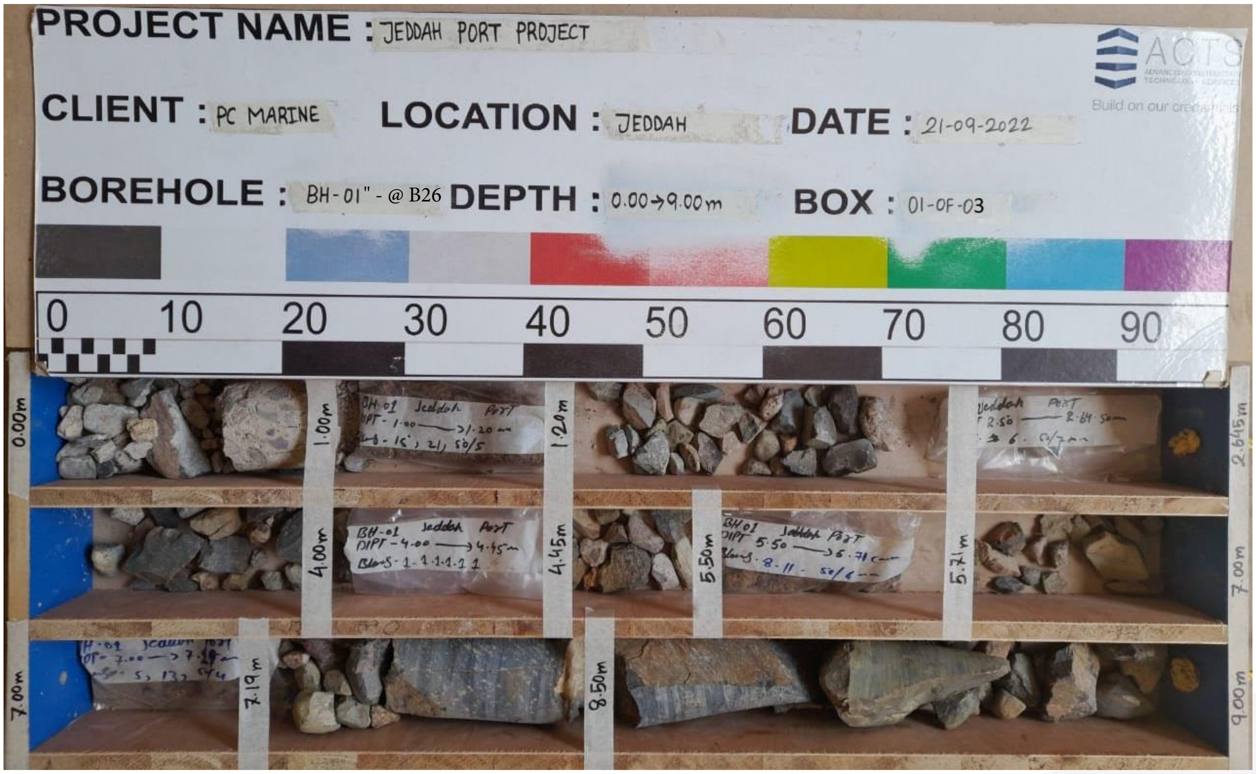


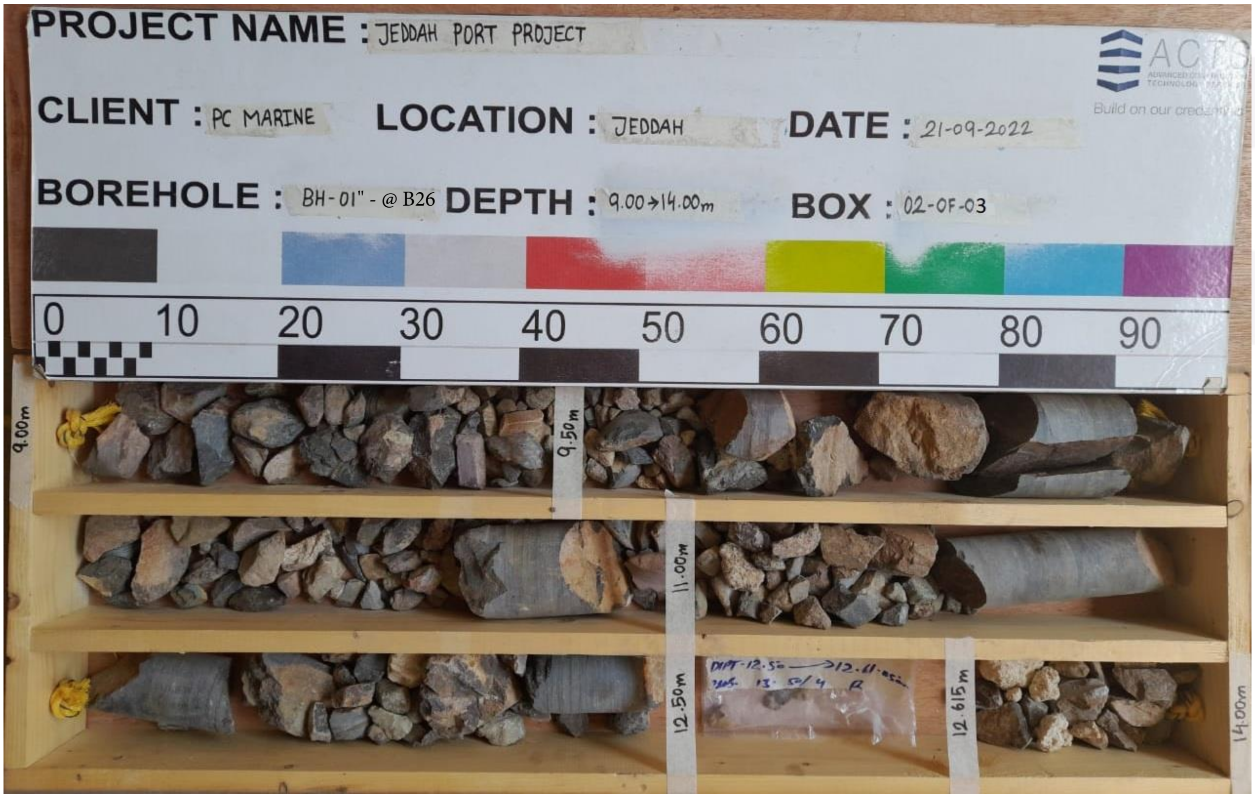
PROJECT NAME : JEDDAH PORT PROJECT

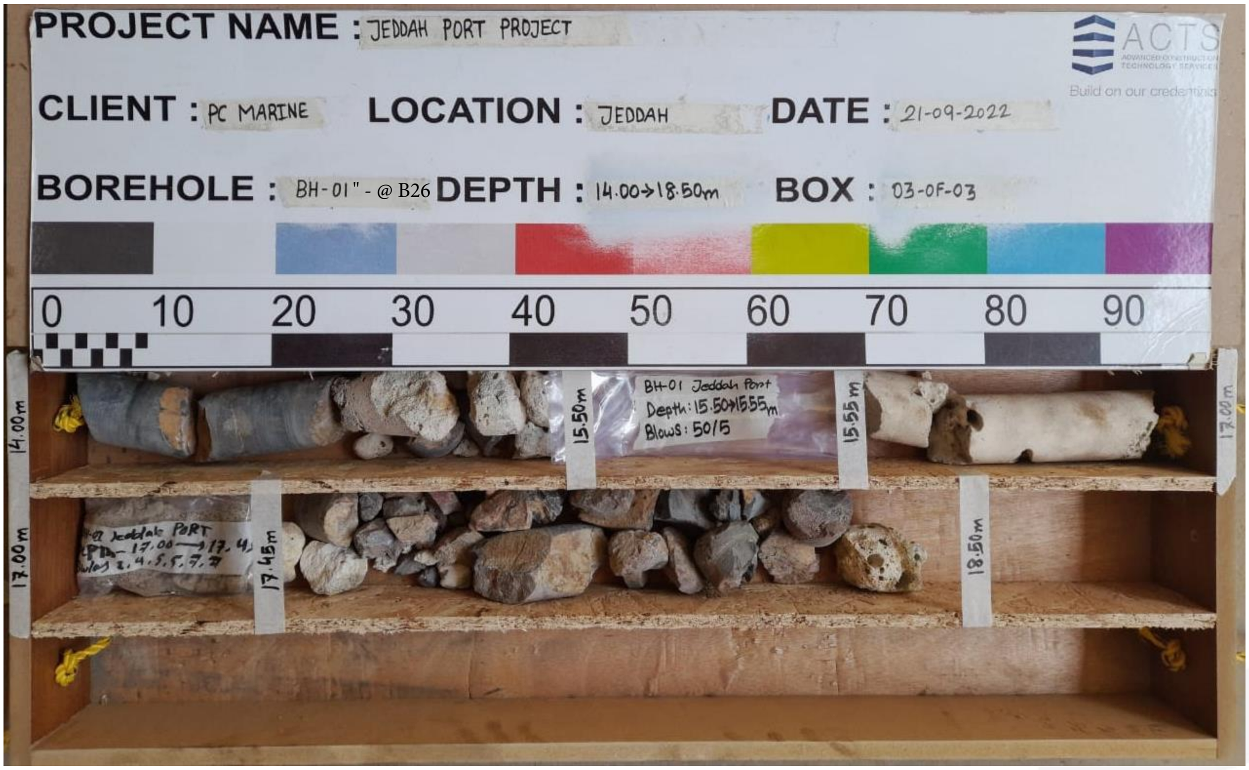
CLIENT : PC MARINE **LOCATION :** JEDDAH **DATE :** 13-09-2022

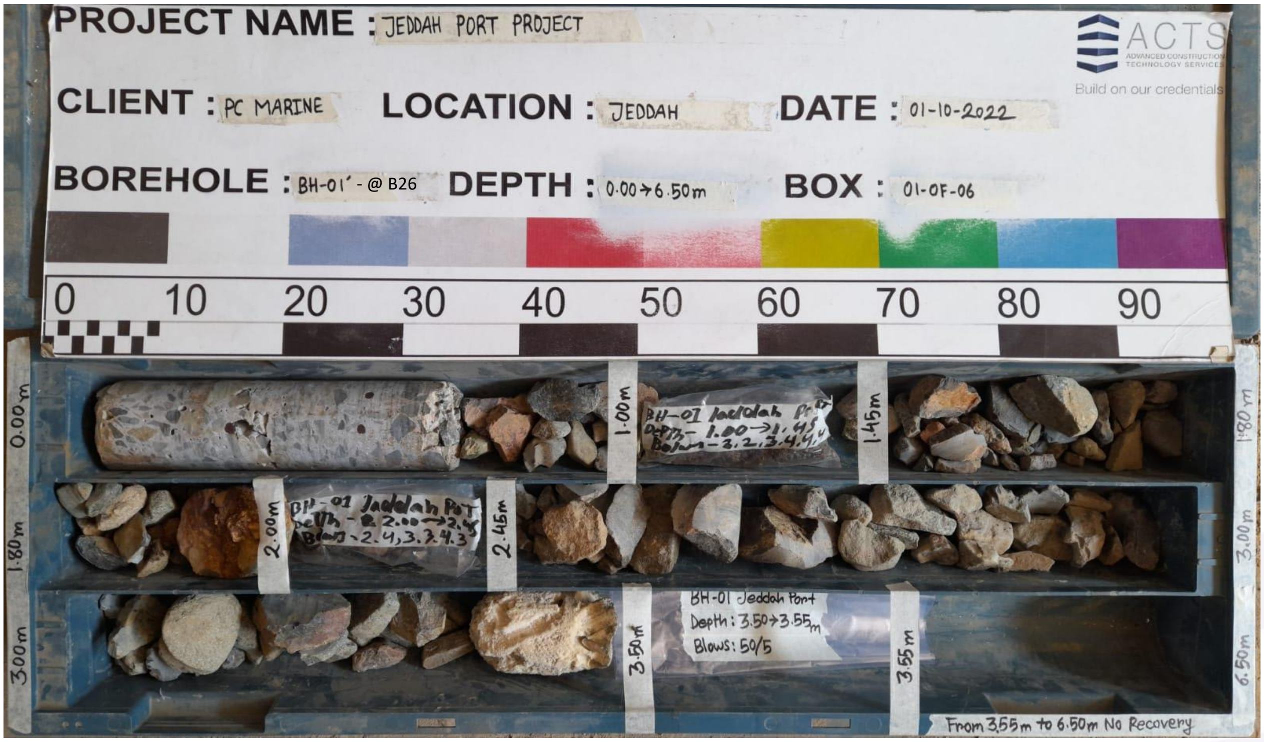
BOREHOLE : BH-02 - @ B26 **DEPTH :** 14.02→20.00m **BOX :** 03-OF-03

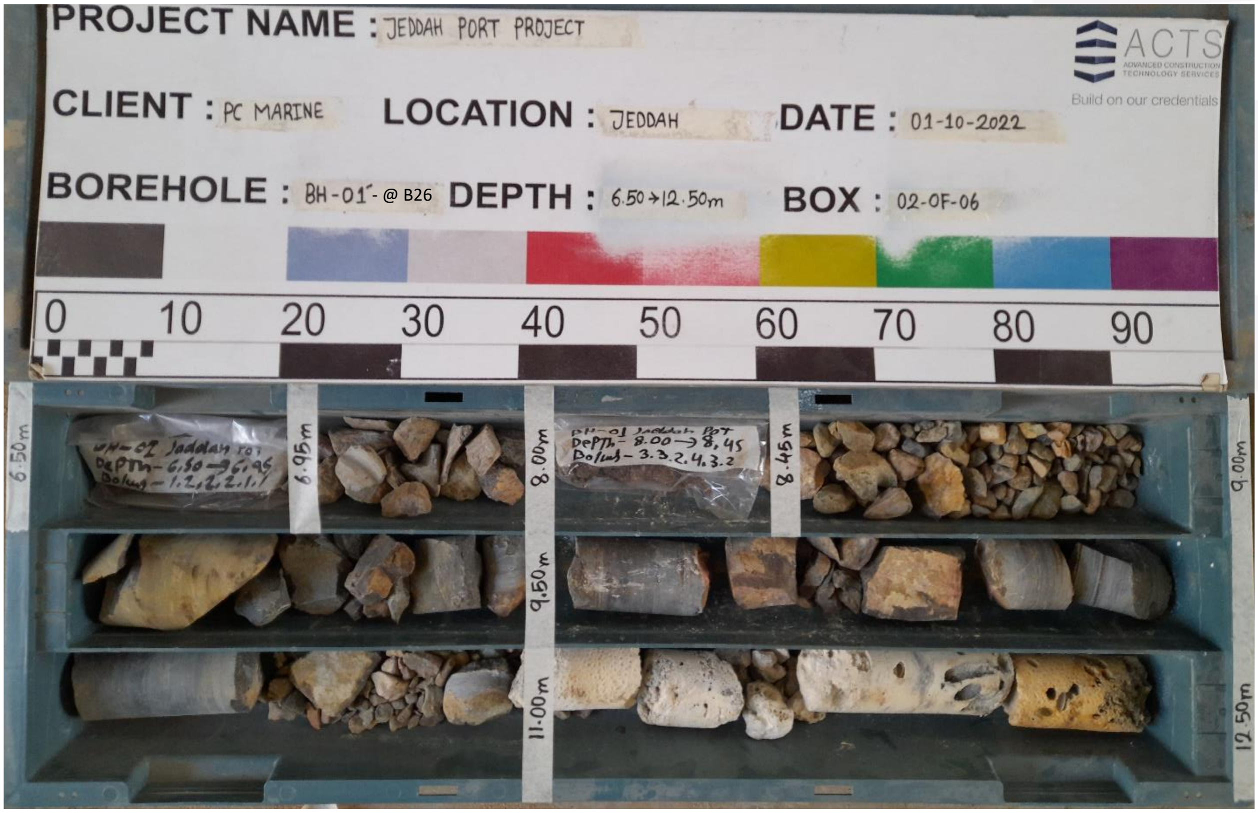
0
10
20
30
40
50
60
70
80
90
14.02 m
FROOM 14.02M-TO 15.50M NO RIECOVRY
15.50m
BH-02. Jeddah Port
DIPT · 15.50 — 15.95m
15.95m
17.00m
17.00 — 17.12
17.125m
18.50m
Jeddah PORT
18.50 — 18.63
18.63m
19.50m
BH-02 Jeddah
DIPT · 19.50 —>19.78
19.68 m
20.00m

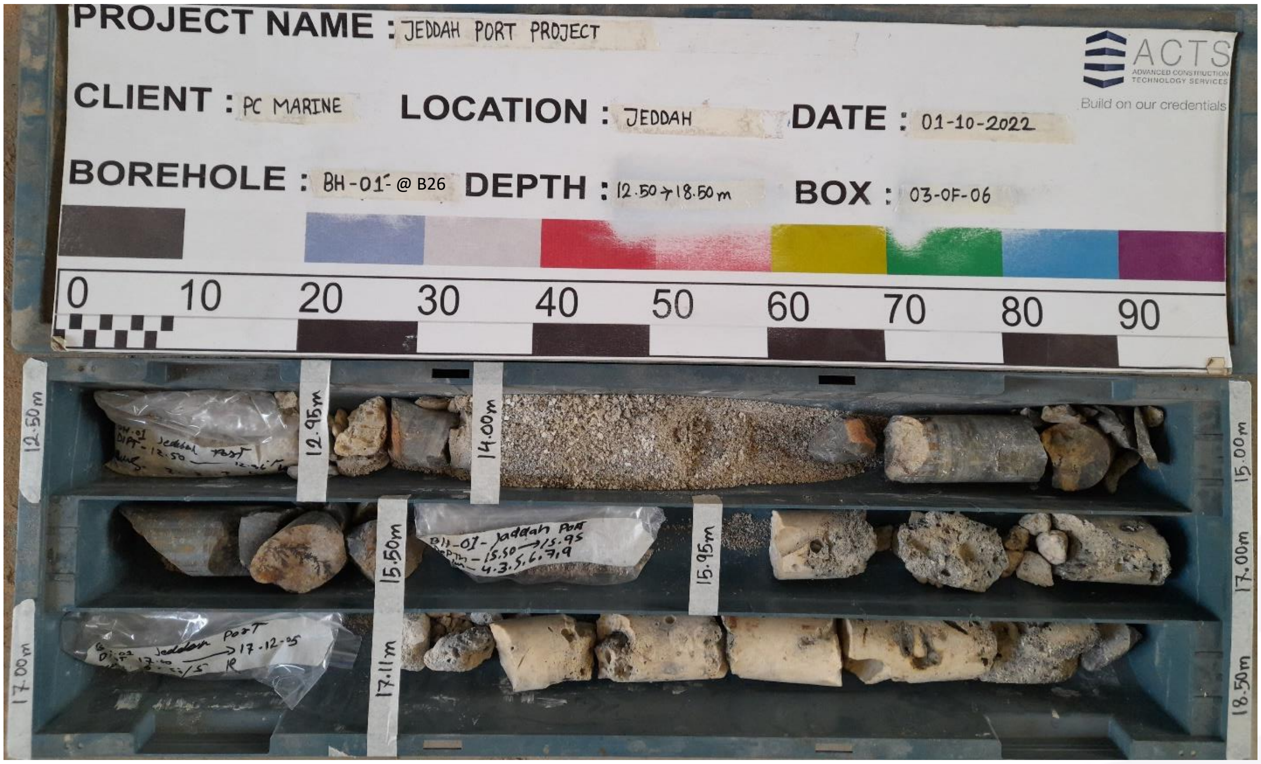

PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 21-09-2022
BOREHOLE : BH-01" - @ B26
DEPTH : 0.00→9.00m
BOX : 01-OF-03
0 10 20 30 40 50 60 70 80 90
0.00m
1.00m
1.20m
2.645m
4.00m
4.45m
5.50m
5.71m
7.00m
7.00m
7.19m
8.50m
9.00m

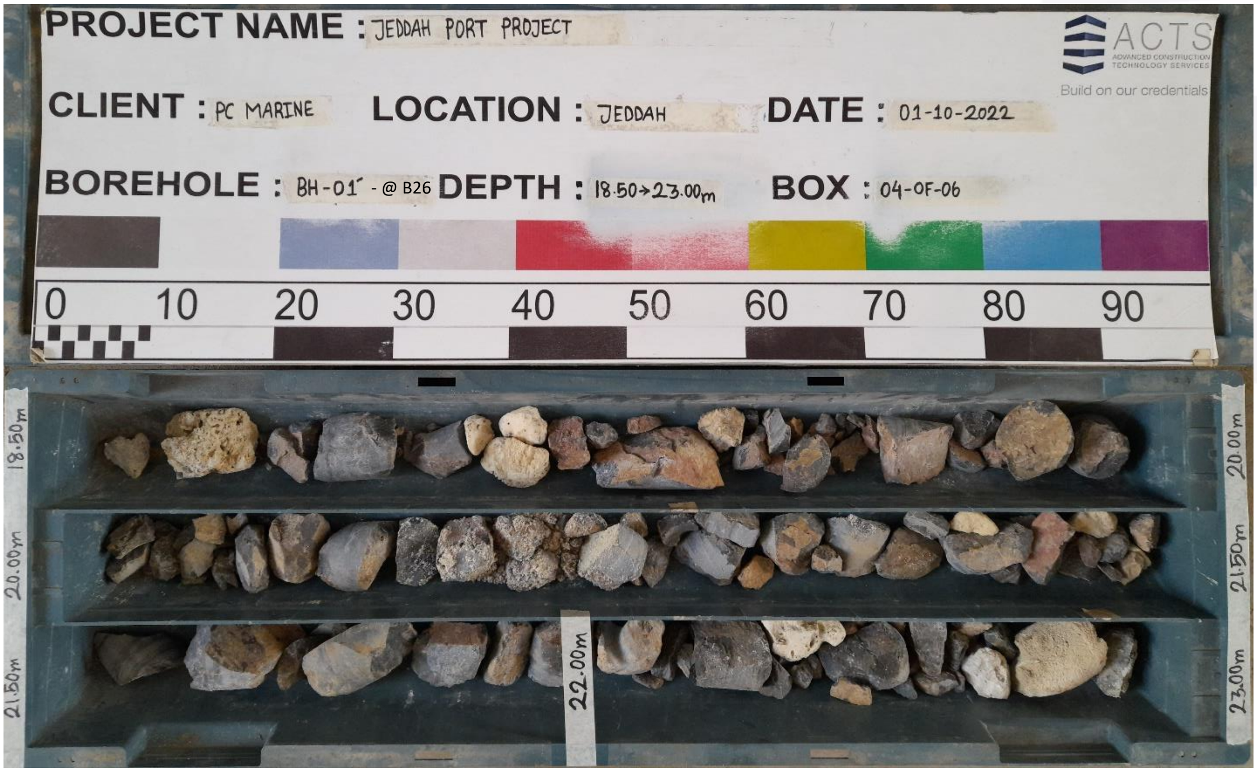

PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 21-09-2022
BOREHOLE : BH-01" - @ B26
DEPTH : 9.00→14.00m
BOX : 02-OF-03
0 10 20 30 40 50 60 70 80 90
9.00m
9.50m
11.00m
12.50m
12.615m
14.00m

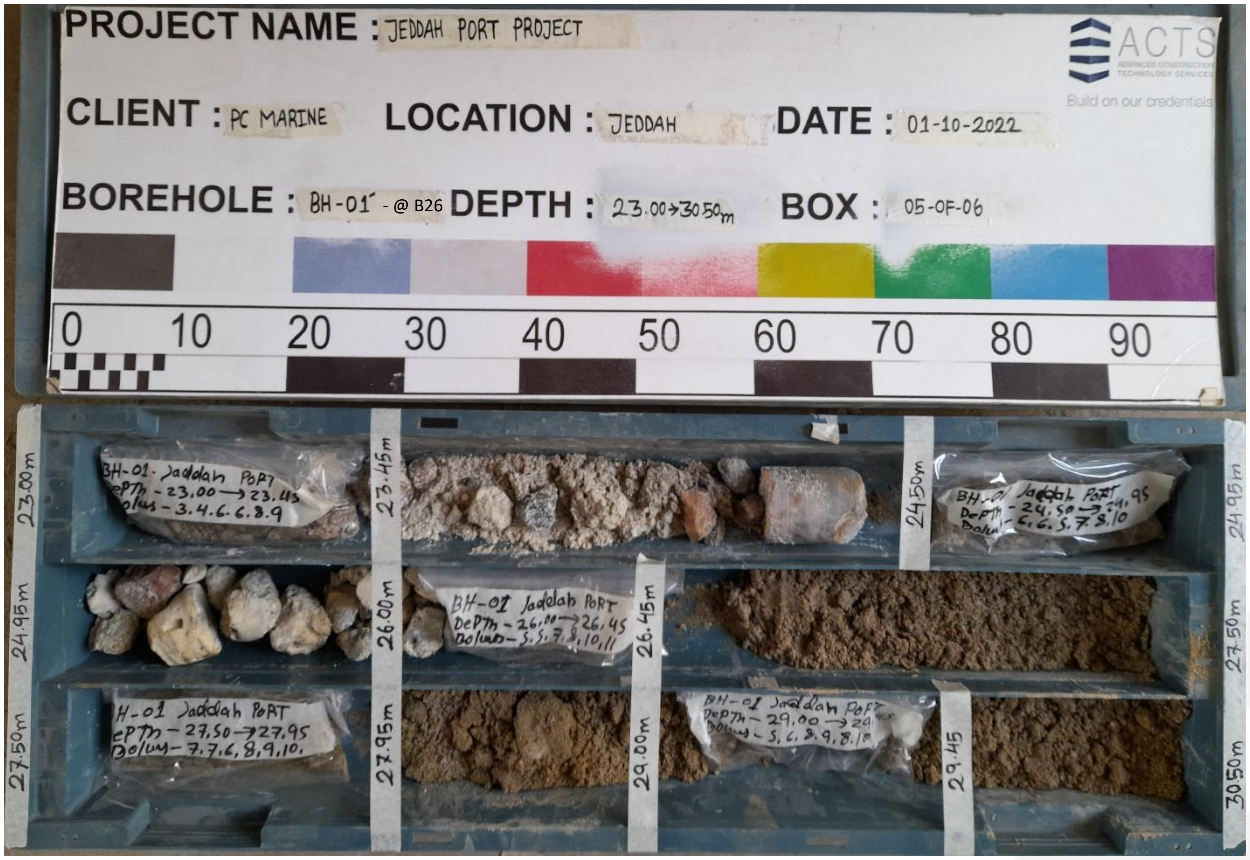

PROJECT NAME : JEDDAH PORT PROJECT
ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 21-09-2022
BOREHOLE : BH-01" - @ B26
DEPTH : 14.00→18.50m
BOX : 03-OF-03
0
10
20
30
40
50
60
70
80
90
14.00m
15.50m
BH-01 Jeddah Port
Depth: 15.50→15.55m
Blows: 50/5
15.55m
17.00m
17.00m
BH-01 Jeddah PORT
Depth - 17.00 → 17.45
Blows 2, 4, 5, 5, 7, 7
17.45m
18.50m


PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 01-10-2022
BOREHOLE : BH-01 - @ B26
DEPTH : 0.00→6.50m
BOX : 01-OF-06
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0 10 20 30 40 50 60 70 80 90
0.00m
1.00m
BH-01 Jeddah Port Depth - 1.00→1.45 Blows - 3.2.3.4.4
1.45m
1.80m
1.80m
2.00m
BH-01 Jeddah Port Depth - 2.00→2.45 Blows - 2.4.3.3.4.3
2.45m
3.00m
3.00m
3.50m
BH-01 Jeddah Port Depth: 3.50→3.55m Blows: 50/5
3.55m
6.50m
From 3.55m to 6.50m No Recovery


PROJECT NAME : JEDDAH PORT PROJECT
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 01-10-2022
BOREHOLE : BH-01 - @ B26
DEPTH : 6.50→12.50m
BOX : 02-OF-06
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0 10 20 30 40 50 60 70 80 90
6.50m
BH-01 Jeddah Port Depth - 6.50→6.95 Blows - 1.2.2.2.1.1
6.95m
8.00m
BH-01 Jeddah Port Depth - 8.00→8.45 Blows - 3.3.2.4.3.2
8.45m
9.00m
9.50m
11.00m
12.50m


PROJECT NAME : JEDDAH PORT PROJECT
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 01-10-2022
BOREHOLE : BH-01 - @ B26
DEPTH : 12.50→18.50m
BOX : 03-OF-06
0
10
20
30
40
50
60
70
80
90
12.50m
12.95m
14.00m
15.00m
15.50m
15.95m
17.00m
17.11m
18.50m


PROJECT NAME : JEDDAH PORT PROJECT
ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
CLIENT : PC MARINE
LOCATION : JEDDAH
DATE : 01-10-2022
BOREHOLE : BH-01 - @ B26
DEPTH : 18.50→23.00m
BOX : 04-OF-06
0
10
20
30
40
50
60
70
80
90
18.50m
20.00m
20.00m
21.50m
21.50m
22.00m
23.00m

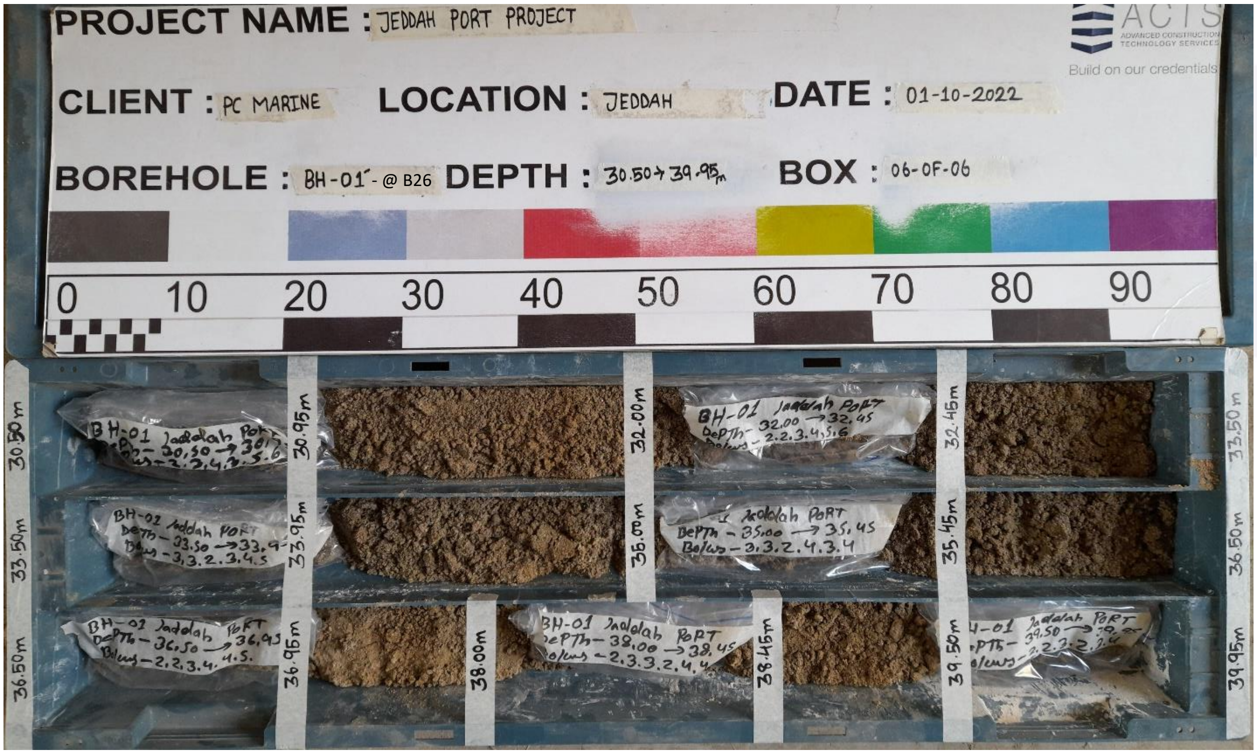


PROJECT NAME : JEDDAH PORT PROJECT

CLIENT : PC MARINE LOCATION : JEDDAH DATE : 01-10-2022

BOREHOLE : BH-01 - @ B26 DEPTH : 23.00→30.50m BOX : 05-OF-06

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0
10
20
30
40
50
60
70
80
90
23.00m
BH-01 Jaddah PORT
DePTh - 23,00 → 23.45
Bolws - 3.4.6.6.8.9
23.45m
24.50m
BH-01 Jaddah PoRT
DePTh - 24,50 → 24.95
Bolws - 6.6.5.7.8.10
24.95m
24.95m
26.00m
BH-01 Jaddah PoRT
DePTh - 26,00 → 26,45
Bolws - 3.5.7.8.10,11
26.45m
27.50m
27.50m
H-01 Jaddah PoRT
DePTh - 27,50 → 27,95
Bolws - 7.7.6,8,9,10.
27.95m
29.00m
BH-01 Jaddah PoRT
DePTh - 29,00 → 29.45
Bolws - 5.6.8.9.8.10
29.45
30.50m



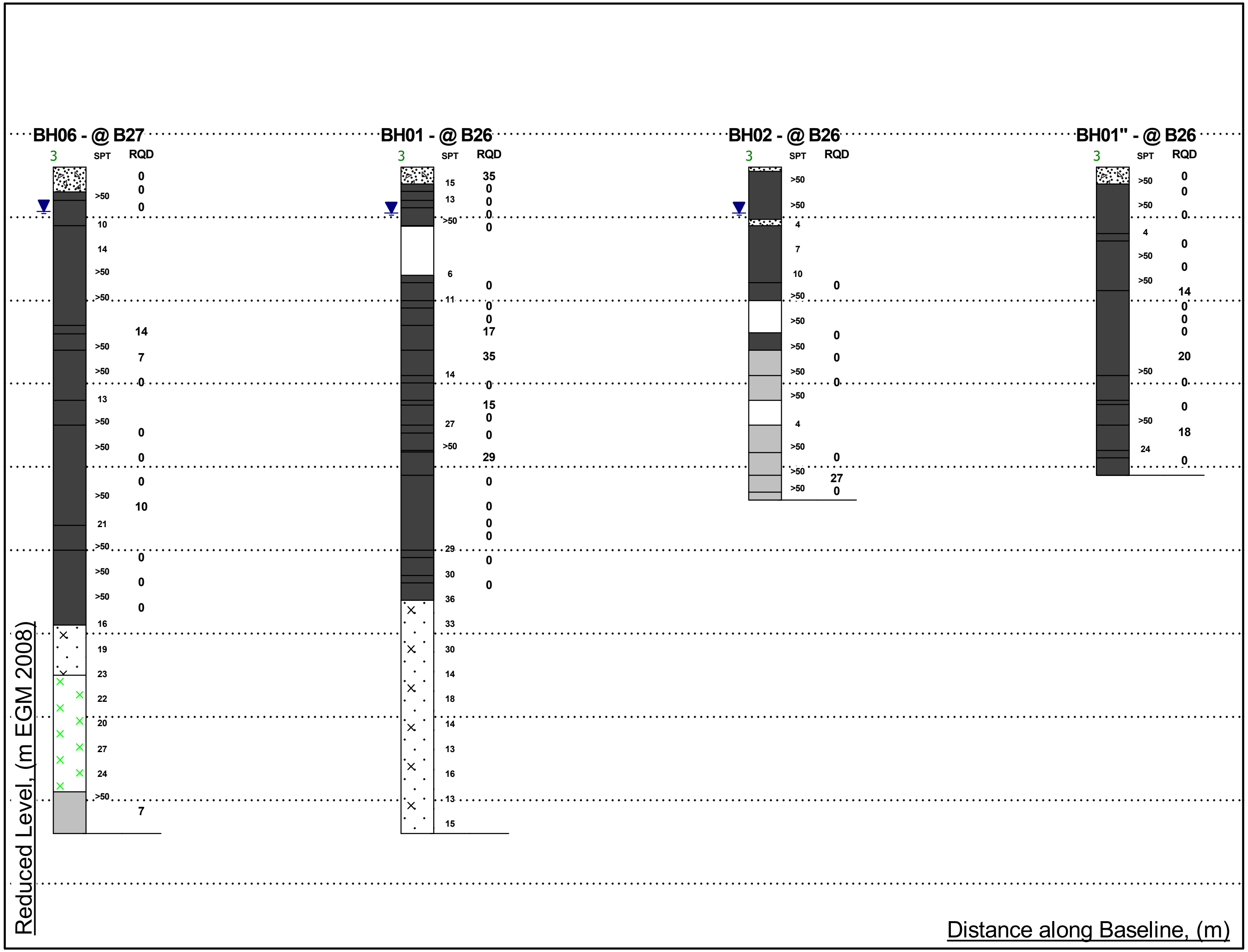
PROJECT NAME : JEDDAH PORT PROJECT

CLIENT : PC MARINE LOCATION : JEDDAH DATE : 01-10-2022

BOREHOLE : BH-01 - @ B26 DEPTH : 30.50→39.95m BOX : 06-OF-06

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials
0
10
20
30
40
50
60
70
80
90
30.50m
BH-01 Jaddah PoRT
DePTh - 30,50 → 30.95
30.95m
32.00m
BH-01 Jaddah PoRT
DePTh - 32.00 → 32.45
Bolws - 2.2.3.4.5.6
32.45m
33.50m
33.50m
BH-01 Jaddah PoRT
DePTh - 33.50 → 33.95
Bolws - 3.3.2.3.4.5
33.95m
35.00m
Jaddah PoRT
DePTh - 35.00 → 35.45
Bolws - 3.3.2.4.3.4
35.45m
36.50m
36.50m
BH-01 Jaddah PoRT
DePTh - 36.50 → 36.95
Bolws - 2.2.3.4.4.5.
36.95m
38.00m
BH-01 Jaddah PoRT
DePTh - 38.00 → 38.45
Bolws - 2.3.3.2.4.4
38.45m
39.50m
BH-01 Jaddah PoRT
DePTh - 39.50 → 39.95
Bolws - 2.2.3.2.3.4
39.95m

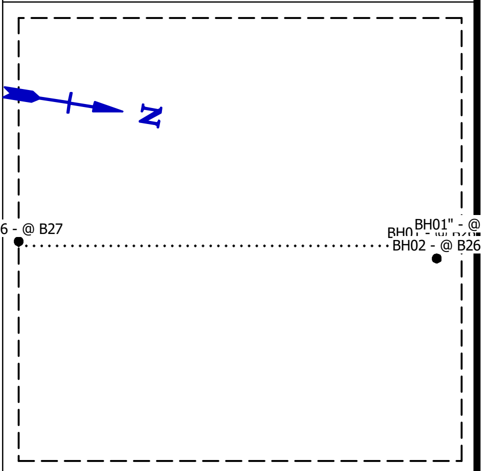
Appendix C – Geological Sections


BH06 - @ B27
3
SPT
RQD
>50
10
14
>50
>50
>50
>50
13
>50
>50
>50
21
>50
>50
>50
16
19
23
22
20
27
24
>50
0
0
0
14
7
0
0
0
0
10
0
0
0
7
BH01 - @ B26
3
SPT
RQD
15
13
>50
6
11
14
27
>50
29
30
36
33
30
14
18
14
13
16
13
15
35
0
0
0
0
0
0
0
17
35
0
15
0
0
29
0
0
0
0
0
0
BH02 - @ B26
3
SPT
RQD
>50
>50
4
7
10
>50
>50
>50
>50
>50
4
>50
>50
>50
0
0
0
0
0
27
0
BH01" - @ B26
3
SPT
RQD
>50
>50
4
>50
>50
>50
>50
24
0
0
0
0
0
14
0
0
0
20
0
0
18
0
5
0
-5
-10
-15
-20
-25
-30
-35
-40
Reduced Level, (m EGM 2008)
Distance along Baseline, (m)

LEGEND

▨	CONCRETE
■	fill materials
☐	No sample
▨	Silty SAND
▩	LIMESTONE
☒	SILT

PLAN VIEW

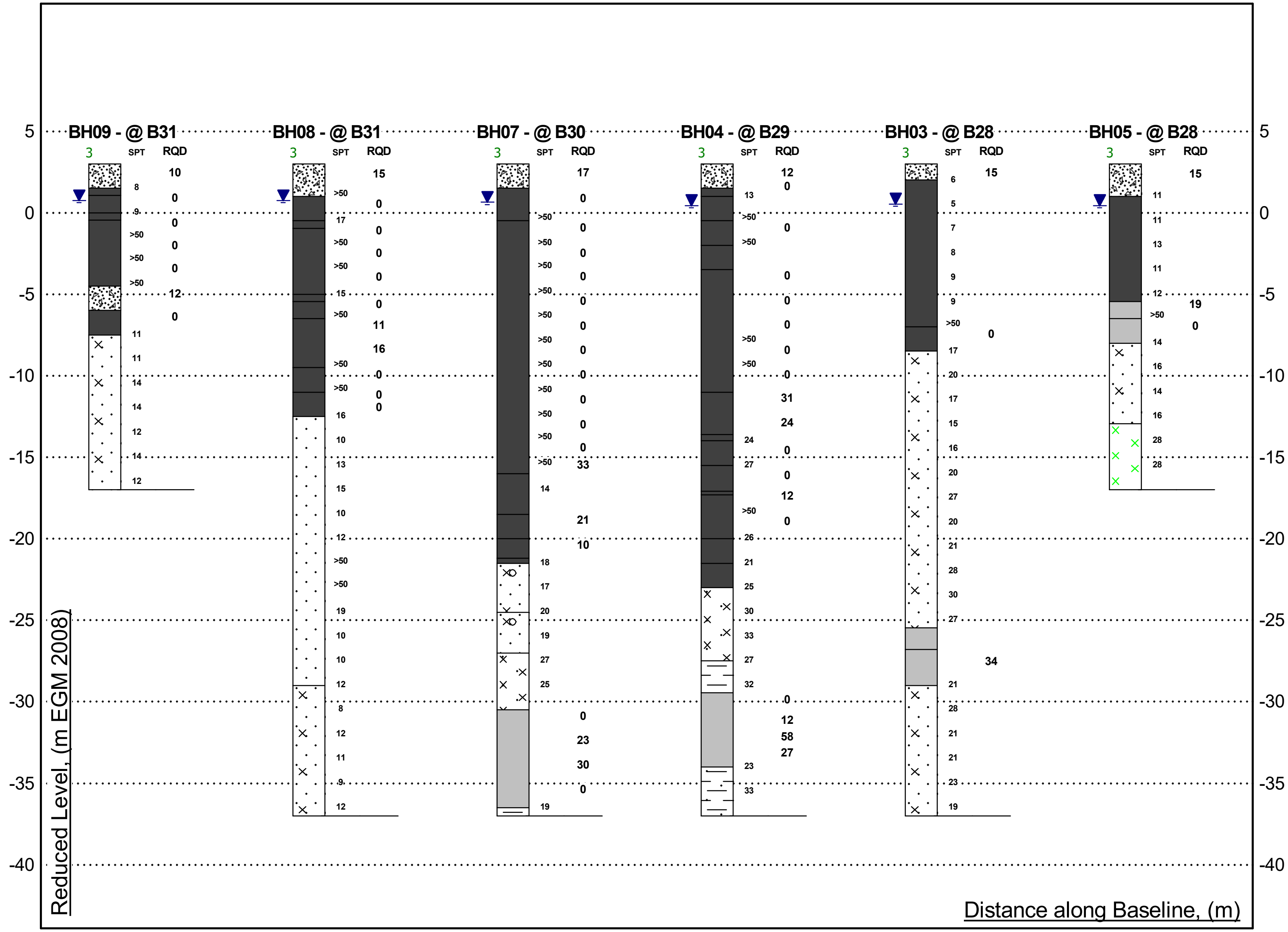

N
BH06 - @ B27
BH01" - @ B26
BH02 - @ B26

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials

Figure : LITHOLOGY SECTION

Client Name:	PC Marine		
Project Name: Jeddah Port Project		**Project No:**	ACTS/KSA/Q-20017/22
Project Location: Jeddah		**Project Grid:** WGS 84 UTM 37	**Datum:** EGM 2008

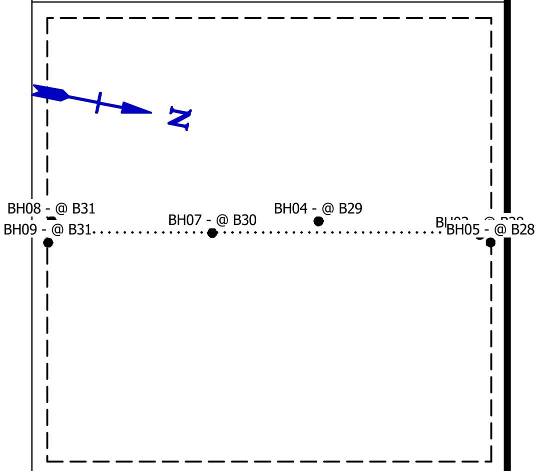
FENCE (SPT+RQD+UCS) JEDDAH PORT PROJECT.GPJ ACTS DATA TEMPLATE.GDT 14-11-22


5
0
-5
-10
-15
-20
-25
-30
-35
-40
Reduced Level, (m EGM 2008)
Distance along Baseline, (m)
BH09 - @ B31
3
SPT
RQD
8
9
>50
>50
>50
11
11
14
14
12
14
12
10
0
0
0
0
12
0
BH08 - @ B31
3
SPT
RQD
>50
17
>50
>50
15
>50
>50
>50
16
10
13
15
10
12
>50
>50
19
10
10
12
8
12
11
9
12
15
0
0
0
0
0
11
16
0
0
0
BH07 - @ B30
3
SPT
RQD
>50
>50
>50
>50
>50
>50
>50
>50
>50
>50
>50
14
18
17
20
19
27
25
19
17
0
0
0
0
0
0
0
0
0
0
0
33
21
10
0
23
30
0
BH04 - @ B29
3
SPT
RQD
13
>50
>50
>50
>50
24
27
>50
26
21
25
30
33
27
32
23
33
12
0
0
0
0
0
0
0
31
24
0
0
12
0
0
12
58
27
BH03 - @ B28
3
SPT
RQD
6
5
7
8
9
9
>50
17
20
17
15
16
20
27
20
21
28
30
27
21
28
21
21
23
19
15
0
34
BH05 - @ B28
3
SPT
RQD
11
11
13
11
12
>50
14
16
14
16
28
28
15
19
0
5
0
-5
-10
-15
-20
-25
-30
-35
-40

LEGEND

- SAND
- CONCRETE
- CLAY
- Sandy CLAY
- SILT
- Sandy SILT
- Silty SAND
- Silty gravelly SAND
- LIMESTONE

PLAN VIEW


N
BH08 - @ B31
BH09 - @ B31
BH07 - @ B30
BH04 - @ B29
BH05 - @ B28

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials

Figure : LITHOLOGY SECTION

Client Name: PC Marine

Project Name: Jeddah Port Project

Project No: ACTS/KSA/Q-20017/22

Project Location: Jeddah

Project Grid: WGS 84 UTM 37

Datum: EGM 2008

FENCE (SPT+RQD+UCS) JEDDAH PORT PROJECT.GPJ ACTS DATA TEMPLATE.GDT 14-11-22

Appendix D – SPT Results and Corrections

ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES Build on our credentials	**Project Name**	Jeddah Islamic Port	**Calc. Ref.#**	GEO/GIR/GSI_Rev.00
	Project No.	ACTS/KSA/Q-20017/22	**Rev.**	00
	Client	PC Marine	**Made by:**	SD
	Calculation:	SPT Summary and Corrections	**Checked:**	MS
			Date:	16-Nov-22

SPT CORRECTIONS:

Rig Type:	**Mobile Drill**
Hammer Efficiency:	**80**
Borehole Diameter:	**122**
SamplerType:	**Standard**
Min. Rod Length:	**3.5**

ηH	1.33
ηB	1.00
ηS	1.00
ηR	varies

BH No.	Depth (m)	ηR	N	N_{60}
BH01 - @ B26	1.00	0.75	15	15
BH01 - @ B26	2.00	0.85	13	15
BH01 - @ B26	3.50	0.85	>50	50
BH01 - @ B26	6.50	0.95	6	8
BH01 - @ B26	8.00	1.00	11	15
BH01 - @ B26	12.50	1.00	14	19
BH01 - @ B26	15.50	1.00	27	36
BH01 - @ B26	17.00	1.00	>50	50
BH01 - @ B26	23.00	1.00	29	39
BH01 - @ B26	24.50	1.00	30	40
BH01 - @ B26	26.00	1.00	36	48
BH01 - @ B26	27.50	1.00	33	44
BH01 - @ B26	29.00	1.00	30	40
BH01 - @ B26	30.50	1.00	14	19
BH01 - @ B26	32.00	1.00	18	24
BH01 - @ B26	33.50	1.00	14	19
BH01 - @ B26	35.00	1.00	13	17
BH01 - @ B26	36.50	1.00	16	21
BH01 - @ B26	38.00	1.00	13	17
BH01 - @ B26	39.50	1.00	15	20
BH01" - @ B26	1.00	0.75	>50	50
BH01" - @ B26	2.50	0.85	>50	50
BH01" - @ B26	4.00	0.95	4	5
BH01" - @ B26	5.50	0.95	>50	50
BH01" - @ B26	7.00	0.95	>50	50
BH01" - @ B26	12.50	1.00	>50	50
BH01" - @ B26	15.50	1.00	>50	50
BH01" - @ B26	17.00	1.00	24	32
BH02 - @ B26	1.00	0.75	>50	50
BH02 - @ B26	2.50	0.85	>50	50
BH02 - @ B26	3.50	0.85	4	5
BH02 - @ B26	5.00	0.95	7	9
BH02 - @ B26	6.50	0.95	10	13
BH02 - @ B26	8.00	1.00	>50	50
BH02 - @ B26	9.50	1.00	>50	50
BH02 - @ B26	11.00	1.00	>50	50

ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES Build on our credentials	**Project Name**	Jeddah Islamic Port	**Calc. Ref.#**	GEO/GIR/GSI_Rev.00
	Project No.	ACTS/KSA/Q-20017/22	**Rev.**	00
	Client	PC Marine	**Made by:**	SD
	Calculation:	SPT Summary and Corrections	**Checked:**	MS
			Date:	16-Nov-22

SPT CORRECTIONS:

Rig Type:	**Mobile Drill**
Hammer Efficiency:	**80**
Borehole Diameter:	**122**
SamplerType:	**Standard**
Min. Rod Length:	**3.5**

ηH	1.33
ηB	1.00
ηS	1.00
ηR	varies

BH No.	Depth (m)	ηR	N	N_{60}
BH02 - @ B26	12.50	1.00	>50	50
BH02 - @ B26	14.00	1.00	>50	50
BH02 - @ B26	15.50	1.00	4	5
BH02 - @ B26	17.00	1.00	>50	50
BH02 - @ B26	18.50	1.00	>50	50
BH02 - @ B26	19.50	1.00	>50	50
BH03 - @ B28	1.00	0.75	6	6
BH03 - @ B28	2.50	0.85	5	6
BH03 - @ B28	4.00	0.95	7	9
BH03 - @ B28	5.50	0.95	8	10
BH03 - @ B28	7.00	0.95	9	11
BH03 - @ B28	8.50	1.00	9	12
BH03 - @ B28	10.00	1.00	>50	50
BH03 - @ B28	11.50	1.00	17	23
BH03 - @ B28	13.00	1.00	20	27
BH03 - @ B28	14.50	1.00	17	23
BH03 - @ B28	16.00	1.00	15	20
BH03 - @ B28	17.50	1.00	16	21
BH03 - @ B28	19.00	1.00	20	27
BH03 - @ B28	20.50	1.00	27	36
BH03 - @ B28	22.00	1.00	20	27
BH03 - @ B28	23.50	1.00	21	28
BH03 - @ B28	25.00	1.00	28	37
BH03 - @ B28	26.50	1.00	30	40
BH03 - @ B28	28.00	1.00	27	36
BH03 - @ B28	32.00	1.00	21	28
BH03 - @ B28	33.50	1.00	28	37
BH03 - @ B28	35.00	1.00	21	28
BH03 - @ B28	36.50	1.00	21	28
BH03 - @ B28	38.00	1.00	23	31
BH03 - @ B28	39.50	1.00	19	25
BH04 - @ B29	2.00	0.85	13	15
BH04 - @ B29	3.50	0.85	>50	50
BH04 - @ B29	5.00	0.95	>50	50
BH04 - @ B29	11.00	1.00	>50	50
BH04 - @ B29	12.50	1.00	>50	50

ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES Build on our credentials	**Project Name**	Jeddah Islamic Port	**Calc. Ref.#**	GEO/GIR/GSI_Rev.00
	Project No.	ACTS/KSA/Q-20017/22	**Rev.**	00
	Client	PC Marine	**Made by:**	SD
	Calculation:	SPT Summary and Corrections	**Checked:**	MS
			Date:	16-Nov-22

SPT CORRECTIONS:

Rig Type:	**Mobile Drill**
Hammer Efficiency:	**80**
Borehole Diameter:	**122**
SamplerType:	**Standard**
Min. Rod Length:	**3.5**

ηH	1.33
ηB	1.00
ηS	1.00
ηR	varies

BH No.	Depth (m)	ηR	N	N_{60}
BH04 - @ B29	17.00	1.00	24	32
BH04 - @ B29	18.50	1.00	27	36
BH04 - @ B29	21.50	1.00	>50	50
BH04 - @ B29	23.00	1.00	26	35
BH04 - @ B29	24.50	1.00	21	28
BH04 - @ B29	26.00	1.00	25	33
BH04 - @ B29	27.50	1.00	30	40
BH04 - @ B29	29.00	1.00	33	44
BH04 - @ B29	30.50	1.00	27	36
BH04 - @ B29	32.00	1.00	32	43
BH04 - @ B29	37.00	1.00	23	31
BH04 - @ B29	38.50	1.00	33	44
BH05 - @ B28	2.00	0.85	11	13
BH05 - @ B28	3.50	0.85	11	13
BH05 - @ B28	5.00	0.95	13	17
BH05 - @ B28	6.50	0.95	11	14
BH05 - @ B28	8.00	1.00	12	16
BH05 - @ B28	9.50	1.00	>50	50
BH05 - @ B28	11.00	1.00	14	19
BH05 - @ B28	12.50	1.00	16	21
BH05 - @ B28	14.00	1.00	14	19
BH05 - @ B28	15.50	1.00	16	21
BH05 - @ B28	17.00	1.00	28	37
BH05 - @ B28	18.50	1.00	28	37
BH06 - @ B27	2.00	0.85	>50	50
BH06 - @ B27	3.50	0.85	10	11
BH06 - @ B27	5.00	0.95	14	18
BH06 - @ B27	6.50	0.95	>50	50
BH06 - @ B27	8.00	1.00	>50	50
BH06 - @ B27	11.00	1.00	>50	50
BH06 - @ B27	12.50	1.00	>50	50
BH06 - @ B27	14.00	1.00	13	17
BH06 - @ B27	15.50	1.00	>50	50
BH06 - @ B27	17.00	1.00	>50	50
BH06 - @ B27	20.00	1.00	>50	50
BH06 - @ B27	21.50	1.00	21	28

ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES Build on our credentials	**Project Name**	Jeddah Islamic Port	**Calc. Ref.#**	GEO/GIR/GSI_Rev.00
	Project No.	ACTS/KSA/Q-20017/22	**Rev.**	00
	Client	PC Marine	**Made by:**	SD
	Calculation:	SPT Summary and Corrections	**Checked:**	MS
			Date:	16-Nov-22

SPT CORRECTIONS:

Rig Type:	**Mobile Drill**
Hammer Efficiency:	**80**
Borehole Diameter:	**122**
SamplerType:	**Standard**
Min. Rod Length:	**3.5**

ηH	1.33
ηB	1.00
ηS	1.00
ηR	varies

BH No.	Depth (m)	ηR	N	N_{60}
BH06 - @ B27	23.00	1.00	>50	50
BH06 - @ B27	24.50	1.00	>50	50
BH06 - @ B27	26.00	1.00	>50	50
BH06 - @ B27	27.50	1.00	16	21
BH06 - @ B27	29.00	1.00	19	25
BH06 - @ B27	30.50	1.00	23	31
BH06 - @ B27	32.00	1.00	22	29
BH06 - @ B27	33.45	1.00	20	27
BH06 - @ B27	35.00	1.00	27	36
BH06 - @ B27	36.50	1.00	24	32
BH06 - @ B27	38.00	1.00	>50	50
BH07 - @ B30	3.50	0.85	>50	50
BH07 - @ B30	5.00	0.95	>50	50
BH07 - @ B30	6.50	0.95	>50	50
BH07 - @ B30	8.00	1.00	>50	50
BH07 - @ B30	9.50	1.00	>50	50
BH07 - @ B30	11.00	1.00	>50	50
BH07 - @ B30	12.50	1.00	>50	50
BH07 - @ B30	14.00	1.00	>50	50
BH07 - @ B30	15.50	1.00	>50	50
BH07 - @ B30	17.00	1.00	>50	50
BH07 - @ B30	18.50	1.00	>50	50
BH07 - @ B30	20.00	1.00	14	19
BH07 - @ B30	24.50	1.00	18	24
BH07 - @ B30	26.00	1.00	17	23
BH07 - @ B30	27.50	1.00	20	27
BH07 - @ B30	29.00	1.00	19	25
BH07 - @ B30	30.50	1.00	27	36
BH07 - @ B30	32.00	1.00	25	33
BH07 - @ B30	39.50	1.00	19	25
BH08 - @ B31	2.00	0.85	>50	50
BH08 - @ B31	3.50	0.85	17	19
BH08 - @ B31	5.00	0.95	>50	50
BH08 - @ B31	6.50	0.95	>50	50
BH08 - @ B31	8.00	1.00	15	20
BH08 - @ B31	9.50	1.00	>50	50

ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES Build on our credentials	**Project Name**	Jeddah Islamic Port	**Calc. Ref.#**	GEO/GIR/GSI_Rev.00
	Project No.	ACTS/KSA/Q-20017/22	**Rev.**	00
	Client	PC Marine	**Made by:**	SD
	Calculation:	SPT Summary and Corrections	**Checked:**	MS
			Date:	16-Nov-22

SPT CORRECTIONS:

Rig Type:	**Mobile Drill**
Hammer Efficiency:	**80**
Borehole Diameter:	**122**
SamplerType:	**Standard**
Min. Rod Length:	**3.5**

ηH	1.33
ηB	1.00
ηS	1.00
ηR	varies

BH No.	Depth (m)	ηR	N	N_{60}
BH08 - @ B31	12.50	1.00	>50	50
BH08 - @ B31	14.00	1.00	>50	50
BH08 - @ B31	15.50	1.00	16	21
BH08 - @ B31	17.00	1.00	10	13
BH08 - @ B31	18.50	1.00	13	17
BH08 - @ B31	20.00	1.00	15	20
BH08 - @ B31	21.50	1.00	10	13
BH08 - @ B31	23.00	1.00	12	16
BH08 - @ B31	24.50	1.00	>50	50
BH08 - @ B31	26.00	1.00	>50	50
BH08 - @ B31	27.50	1.00	19	25
BH08 - @ B31	29.00	1.00	10	13
BH08 - @ B31	30.50	1.00	10	13
BH08 - @ B31	32.00	1.00	12	16
BH08 - @ B31	33.50	1.00	8	11
BH08 - @ B31	35.00	1.00	12	16
BH08 - @ B31	36.50	1.00	11	15
BH08 - @ B31	38.00	1.00	9	12
BH08 - @ B31	39.50	1.00	12	16
BH09 - @ B31	1.50	0.75	8	8
BH09 - @ B31	3.00	0.85	9	10
BH09 - @ B31	4.50	0.95	>50	50
BH09 - @ B31	6.00	0.95	>50	50
BH09 - @ B31	7.50	0.95	>50	50
BH09 - @ B31	10.50	1.00	11	15
BH09 - @ B31	12.00	1.00	11	15
BH09 - @ B31	13.50	1.00	14	19
BH09 - @ B31	15.00	1.00	14	19
BH09 - @ B31	16.50	1.00	12	16
BH09 - @ B31	18.00	1.00	14	19
BH09 - @ B31	19.50	1.00	12	16

Appendix E – Lab Test Results

ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES Build on our credentials	**Project Name**	Jeddah Islamic Port	**Date:**	02/11/2022
	Project No.	ACTS/KSA/Q-20017/22	**Rev.**	00
	Client	PC Marine	**Made by:**	SD
	Title	Summary of Soil Laboratory Test Results	**Checked:**	MS

BH/TP No.	Depth	Composition			Atterberg Limits			Moisture Content (%)
	mbEGL	Gravel (%)	Sand (%)	Fines (%)	LL (%)	PL (%)	PI (%)	
BH01-	8.00-8.45	0	92	8	NP	NP	NP	3
BH01-	12.50-12.95	1	94	5	NP	NP	NP	4
BH01-	27.50-27.95	0	93	7	NP	NP	NP	6
BH01-	39.50-39.95	0	93	8	NP	NP	NP	6
BH02	3.95-5.00	1	92	7	NP	NP	NP	4
BH03	1.00-1.45	9	86	5	NP	NP	NP	11
BH03	13.00-14.50	0	71	29	NP	NP	NP	25
BH03	26.50-26.95	0	76	24	NP	NP	NP	15
BH03	38.45-40.00	0	57	43	NP	NP	NP	19
BH04	2.00-2.45	0	93	7	NP	NP	NP	9
BH04	24.95-25.50	5	89	6	NP	NP	NP	5
BH04	29.00-29.45	10	15	75	NP	NP	NP	12
BH04	37.45-38.00	8	20	72	36	21	15	23
BH05	2.00-2.45	0	95	5	NP	NP	NP	11
BH05	11.00-11.45	0	77	23	NP	NP	NP	24
BH05	18.50-18.95	0	6	94	NP	NP	NP	21
BH-06	(5.00-5.45)	0	85	15	NP	NP	NP	3
BH-06	14.00-14.45	2	86	12	NP	NP	NP	3
BH-06	21.50-21.95	1	90	9	NP	NP	NP	9
BH-06	36.50-36.95	1	5	94	53	29	24	13
BH-07	20.0-20.45	0	89	11	NP	NP	NP	13
BH-07	24.50-24.95	11	65	24	NP	NP	NP	13
BH-07	29.00-29.45	1	59	40	NP	NP	NP	10
BH-07	32.00-32.45	12	37	51	NP	NP	NP	20
BH-08	15.50-15.95	14	84	2	NP	NP	NP	5
BH-08	30.50-30.95	18	79	3	NP	NP	NP	6
BH-08	32.00-32.45	2	90	8	NP	NP	NP	11
BH-08	39.50-39.95	6	85	9	NP	NP	NP	4
BH-09	3.00-3.45	6	88	6	NP	NP	NP	20
BH-09	10.50-10.95	13	75	12	NP	NP	NP	23
BH-09	19.50-19.95	1	90	9	NP	NP	NP	14

ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES Build on our credentials	**Project Name**	Jeddah Islamic Port	**Date:**	02-Nov
	Project No.	ACTS/KSA/Q-20017/22	**Rev.**	00
	Client	PC Marine	**Made by:**	SD
	Tilte	Summary of Rock Laboratory Test Results	**Checked:**	MS

BH/TP No.	Depth (mbEGL)	Point Load, Mpa		UCS, Mpa
		IS	IS50	
BH01-	9.50-9.60	10.6	10.8	
BH01-	10.10-10.25			117
BH01-	11.10-11.20	1.66	1.71	
BH01-	11.20-11.40			5.5
BH01-	14.35-14.50	11.4	11.6	
BH01-	17.40-17.50	3.05	3.11	
BH02	11.12-12.50	2.17	2.37	
BH03	29.95-30.10	1.27	1.3	
BH03	30.60-30.80	1.6	1.65	
BH03	31.30-31.50	0.789	0.805	
BH04	10.00-10.10	11.2	11.5	
BH04	14.70-14.90	3.22	3.28	
BH04	16.10-16.30			36.6
BH04	20.15-20.30			106
BH04	32.70-32.80	0.076	0.077	
BH04	34.45-34.60	0.507	0.517	
BH04	35.95-35.85			2.1
BH04	36.25-36.40			2.7
BH04	36.40-36.50	0.505	0.515	
BH04	36.60-36.80			0.8
BH05	8.50-8.60	3.02	3.26	
BH06	10.0-10.20	4.76	5.09	
BH06	11.50-11.60	8.66	8.75	
BH06	19.0-19.10	1.35	1.38	
BH06	39.90-40	0.738	0.753	
BH07	9.8-9.9	9.82	10.1	
BH07	18.7-18.8	9.16	9.25	
BH07	21.5-21.7			77.7
BH07	23.55-23.65	10	10.3	
BH07	35-35.10	0.521	0.537	
BH07	36.7-36.90			0.9
BH-07	38.4-38.5	0.307	0.319	
BH-08	11.4-11.5	12	12.1	
BH-08	14.11-14.2	11.2	11.3	
BH-08	15.1-15.2	12.8	12.9	

ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES Build on our credentials	**Project Name**	**Jeddah Islamic Port**	**Date:**	**16/11/2022**
	Project No.	**ACTS/KSA/Q-20017/22**	**Rev.**	**0**
	Client	**PC Marine**	**Made by:**	**SD**
	Calculation:	**Summary of Chemical Laboratory Test Results**	**Checked:**	**MS**

BH/TP No.	Depth (mbEGL)	Organic Content of Soil (%)	Sulfite Content (SO3) of Soil (%)	Sulphate Content (SO4) of Soil (%)	Chloride Content of Soil (%)	pH of Soil	TDS of Water
			Water solubLe SO3 (mg/l)	Water solubLe SO4 (mg/l)	Water solubLe Chloride %		
BH01	39.50-39.95	2.00	500.00	600.00	0.41	8	
BH02	12.64-14.00	2.20	1140.00	1370.00	0.45	8.6	
BH03	30.60-30.80	1.40	480.00	580.00	0.40	8.2	
BH04	16.10-16.30	0.40	30.00	30.00	0.01	8.5	
BH05	2.00-2.45	1.00	360.00	430.00	40	8	
BH06	39.90-40.00	0.90	400.00	480.00	0.37	8.3	
BH07	36.70-36.90	0.90	580.00	700.00	0.43	8.3	
BH08	8.45-9.50	1.40	340.00	410.00	0.27	8.3	
BH09	9.65-9.75	1.90	580.00	700.00	0.26	8.5	
BH01							40386
BH02							39666
BH03							40954
BH04							40792
BH05							40426
BH06							39478
BH07							40045
BH08							39599
BH09							39322

ACTS Serial No.:	2176930
Reporting Date :	12-Nov-22
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TEST REPORT

CHEMICAL ANALYSIS OF WATER

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED BY:	ACTS Jeddah Main Branch

TWO Number:	ACTS-2215864	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-01
IR / WIR / RFI Number:	-	Start Depth, m:	-
ACTS Ref.:	NOV2210100604	End Depth, m:	-
Sampling Date:	-	Sampling Method Used:	-
Receiving Date:	05-Nov-22	Sampling Plan Used if any:	-
Testing Date:	06-Nov-22	Name or Initials of the Person(s) who prepared and tested the samples	Noushad
Sample Type :	WATER		-
Sample Located / Selected by:	Customer	-	-
Sample Collected / Extracted by:	ACTS	-	-
Sample Location, Description, Identification and other required info.:	BH-01		

Test	Test Method	Result	Unit	Limits	Remarks
TOTAL FILTERABLE MATTER (TDS)	ASTM D5907	**40386**	ppm	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Ruba AbdulAziz Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2176931
Reporting Date :	12-Nov-22
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TEST REPORT

CHEMICAL ANALYSIS OF WATER

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED BY:	ACTS Jeddah Main Branch

TWO Number:	ACTS-2215864	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-02
IR / WIR / RFI Number:	-	Start Depth, m:	-
ACTS Ref.:	NOV2210100605	End Depth, m:	-
Sampling Date:	-	Sampling Method Used:	-
Receiving Date:	05-Nov-22	Sampling Plan Used if any:	-
Testing Date:	06-Nov-22	Name or Initials of the Person(s) who prepared and tested the samples	Noushad
Sample Type :	WATER		-
Sample Located / Selected by:	Customer	-	-
Sample Collected / Extracted by:	ACTS	-	-
Sample Location, Description, Identification and other required info.:	BH-02		

Test	Test Method	Result	Unit	Limits	Remarks
TOTAL FILTERABLE MATTER (TDS)	ASTM D5907	**39666**	ppm	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Ruba AbdulAziz Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
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Build on our credentials

ACTS Serial No.:	2176932
Reporting Date :	12-Nov-22
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TEST REPORT
CHEMICAL ANALYSIS OF WATER

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED BY:	ACTS Jeddah Main Branch

TWO Number:	ACTS-2215864	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-03
IR / WIR / RFI Number:	-	Start Depth, m:	-
ACTS Ref.:	NOV2210100606	End Depth, m:	-
Sampling Date:	-	Sampling Method Used:	-
Receiving Date:	05-Nov-22	Sampling Plan Used if any:	-
Testing Date:	06-Nov-22	Name or Initials of the Person(s) who prepared and tested the samples	Noushad
Sample Type :	WATER		-
Sample Located / Selected by:	Customer	-	-
Sample Collected / Extracted by:	ACTS	-	-
Sample Location, Description, Identification and other required info.:	BH-03		

Test	Test Method	Result	Unit	Limits	Remarks
TOTAL FILTERABLE MATTER (TDS)	ASTM D5907	**40954**	ppm	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Ruba AbdulAziz Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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ACTS Serial No.:	2176933
Reporting Date :	12-Nov-22
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TEST REPORT

CHEMICAL ANALYSIS OF WATER

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED BY:	ACTS Jeddah Main Branch

TWO Number:	ACTS-2215864	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-04
IR / WIR / RFI Number:	-	Start Depth, m:	-
ACTS Ref.:	NOV2210100607	End Depth, m:	-
Sampling Date:	-	Sampling Method Used:	-
Receiving Date:	05-Nov-22	Sampling Plan Used if any:	-
Testing Date:	06-Nov-22	Name or Initials of the Person(s) who prepared and tested the samples	Noushad
Sample Type :	WATER		-
Sample Located / Selected by:	Customer	-	-
Sample Collected / Extracted by:	ACTS	-	-
Sample Location, Description, Identification and other required info.:	BH-04		

Test	Test Method	Result	Unit	Limits	Remarks
TOTAL FILTERABLE MATTER (TDS)	ASTM D5907	**40792**	ppm	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Ruba AbdulAziz Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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ACTS Serial No.:	2176934
Reporting Date :	12-Nov-22
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TEST REPORT

CHEMICAL ANALYSIS OF WATER

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED BY:	ACTS Jeddah Main Branch

TWO Number:	ACTS-2215864	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-05
IR / WIR / RFI Number:	-	Start Depth, m:	-
ACTS Ref.:	NOV2210100608	End Depth, m:	-
Sampling Date:	-	Sampling Method Used:	-
Receiving Date:	05-Nov-22	Sampling Plan Used if any:	-
Testing Date:	06-Nov-22	Name or Initials of the Person(s) who prepared and tested the samples	Nousd
Sample Type :	WATER		-
Sample Located / Selected by:	Customer	-	-
Sample Collected / Extracted by:	ACTS	-	-
Sample Location, Description, Identification and other required info.:	BH-05		

Test	Test Method	Result	Unit	Limits	Remarks
TOTAL FILTERABLE MATTER (TDS)	ASTM D5907	**40426**	ppm	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Ruba AbdulAziz Data Encoder	Ahmad Hablos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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ACTS Serial No.:	2176935
Reporting Date :	12-Nov-22
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TEST REPORT
CHEMICAL ANALYSIS OF WATER

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED BY:	ACTS Jeddah Main Branch

TWO Number:	ACTS-2215864	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-06
IR / WIR / RFI Number:	-	Start Depth, m:	-
ACTS Ref.:	NOV2210100609	End Depth, m:	-
Sampling Date:	-	Sampling Method Used:	-
Receiving Date:	05-Nov-22	Sampling Plan Used if any:	-
Testing Date:	10-Nov-22	Name or Initials of the Person(s) who prepared and tested the samples	Noushad
Sample Type :	WATER		-
Sample Located / Selected by:	Customer	-	-
Sample Collected / Extracted by:	ACTS	-	-
Sample Location, Description, Identification and other required info.:	BH-06		

Test	Test Method	Result	Unit	Limits	Remarks
TOTAL FILTERABLE MATTER (TDS)	ASTM D5907	**39478**	ppm	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Ruba AbdulAziz Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.:	2176936
Reporting Date :	12-Nov-22
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TEST REPORT
CHEMICAL ANALYSIS OF WATER

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED BY: ACTS Jeddah Main Branch

TWO Number:	ACTS-2215864	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-07
IR / WIR / RFI Number:	-	Start Depth, m:	-
ACTS Ref.:	NOV2210100610	End Depth, m:	-
Sampling Date:	-	Sampling Method Used:	-
Receiving Date:	05-Nov-22	Sampling Plan Used if any:	-
Testing Date:	06-Nov-22	Name or Initials of the Person(s) who prepared and tested the samples	Noushad
Sample Type :	WATER		-
Sample Located / Selected by:	Customer	-	-
Sample Collected / Extracted by:	ACTS	-	-
Sample Location, Description, Identification and other required info.:	BH-07		

Test	Test Method	Result	Unit	Limits	Remarks
TOTAL FILTERABLE MATTER (TDS)	ASTM D5907	**40045**	ppm	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Ruba AbdulAziz Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.:	2176937
Reporting Date :	12-Nov-22
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TEST REPORT

CHEMICAL ANALYSIS OF WATER

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED BY:	ACTS Jeddah Main Branch

TWO Number:	ACTS-2215864	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-08
IR / WIR / RFI Number:	-	Start Depth, m:	-
ACTS Ref.:	NOV2210100611	End Depth, m:	-
Sampling Date:	-	Sampling Method Used:	-
Receiving Date:	05-Nov-22	Sampling Plan Used if any:	-
Testing Date:	10-Nov-22	Name or Initials of the Person(s) who prepared and tested the samples	Noushad
Sample Type :	WATER		-
Sample Located / Selected by:	Customer	-	-
Sample Collected / Extracted by:	ACTS	-	-
Sample Location, Description, Identification and other required info.:	BH-08		

Test	Test Method	Result	Unit	Limits	Remarks
TOTAL FILTERABLE MATTER (TDS)	ASTM D5907	**39599**	ppm	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Ruba AbdulAziz Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
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ACTS Serial No.:	2176938
Reporting Date :	12-Nov-22
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TEST REPORT
CHEMICAL ANALYSIS OF WATER

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED BY:	ACTS Jeddah Main Branch

TWO Number:	ACTS-2215864	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-09
IR / WIR / RFI Number:	-	Start Depth, m:	-
ACTS Ref.:	NOV2210100612	End Depth, m:	-
Sampling Date:	-	Sampling Method Used:	-
Receiving Date:	05-Nov-22	Sampling Plan Used if any:	-
Testing Date:	10-Nov-22	Name or Initials of the Person(s) who prepared and tested the samples	Noushad
Sample Type :	WATER		-
Sample Located / Selected by:	Customer	-	-
Sample Collected / Extracted by:	ACTS	-	-
Sample Location, Description, Identification and other required info.:	BH-09		

Test	Test Method	Result	Unit	Limits	Remarks
TOTAL FILTERABLE MATTER (TDS)	ASTM D5907	**39322**	ppm	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Ruba AbdulAziz Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

ACTS Serial No.:	2176594
Reporting Date:	10-Nov-22
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TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215806	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-09
IR / WIR / RFI / Number:	-	Start Depth, m:	3.00
ACTS Reference:	NOV2209090569	End Depth, m:	3.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	07-Nov-22	Sampling Method Used:	-
Testing Date:	08-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-09 - S1 (3.00-3.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	775.2
M_{cds}, Mass of Container and Oven Dry Specimen, g	675.5
M_c, Mass of Container, g	185.5
Mass of Moist Specimen, g	589.7
M_w, Mass of Water, g	99.7
M_s, Mass of Oven Dry Specimen, g	490
w, Water Content, %	20

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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ACTS
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ACTS Serial No:	2176595
Reporting Date:	10-Nov-22
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STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

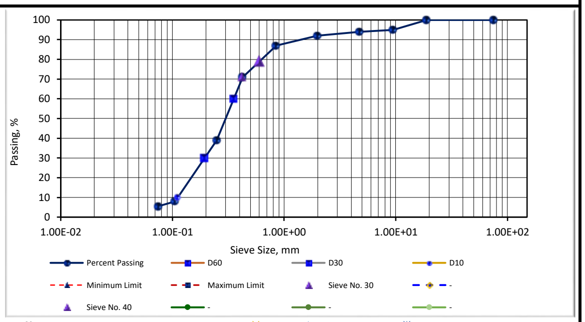
ASTM D2487-17 and ASTM D3282-15

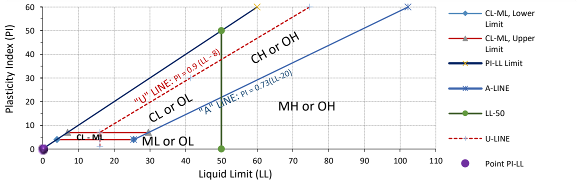
PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215806	Test Pit No. / Borehole No.:	BH-09	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	3.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090570	End Depth, m:	3.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	07-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	09-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-09 - S1 (3.00-3.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	23.7	5	5	**95**	-	-	-	-
No. 4	4.75	5.8	1	6	**94**	-	-	-	-
No. 10	2.00	7.4	2	8	**92**	-	-	-	-
No. 20	0.850	27.0	6	13	**87**	-	-	-	-
No. 40	0.425	79.4	16	29	**71**	-	-	-	-
No. 60	0.250	155.7	32	61	**39**	-	-	-	-
No. 140	0.106	154.1	31	92	**8**	-	-	-	-
No. 200	0.075	9.8	2	94	**6**	-	-	-	-
Pan	-	27.1	6	100	**0**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-

Mass of the Tested Sample,g	490.0	Moisture Content	20%





Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	**6%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	6%
Sand	**88%**	Coarse (2.00 - 4.75 mm)	2%
		Medium (0.425 - 2.00 mm)	21%
		Fine (0.075 - 0.425 mm)	65%
Fines	**6%**		

Cu	3.161
Cc	0.957
D_{60}, mm	0.354
D_{30}, mm	0.195
D_{10}, mm	0.112
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION		
	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-3(0) Fine Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

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ACTS Serial No.	2176596
Reporting Date	10-Nov-22
Page	1 of 1

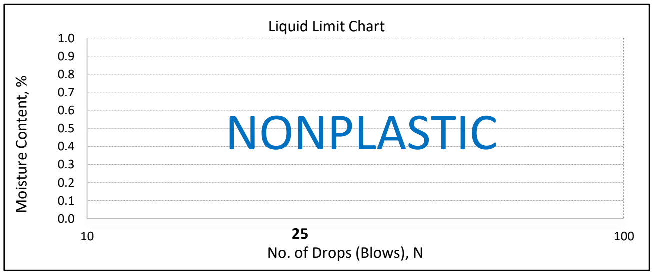
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215806	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	29
ACTS Reference:	NOV2209090571		As received Water Content, %:	20
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	07-Nov-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	09-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-09	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	3.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	3.45			-
Sample Location, Description, Ident. and other required info. :	BH-09 - S1 (3.00-3.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Enceder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2176597
Reporting Date	10-Nov-22
Page	1 of 1

TEST REPORT

Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils

ASTM D2974 − $20^{\varepsilon1}$

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215806	Name of Supplier / Source:	-
Customer Reference:	-	Drill Hole/Bore Hole Number:	BH-09
IR / WIR / RFI / Number:	-	Start Depth, m:	9.65
ACTS Reference:	NOV2209090574	End Depth, m:	9.75
Sampling Date:	07-Nov-22	Reference or Specification Used:	-
Receiving Date:	07-Nov-22	Test Method Used:	Method A (General Classification)
Testing Date:	11-Nov-22	Sampling Method Used:	-
Sample Selected / Located by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Name or Initial of Person(s) who performed the test:	Noushad
Sample Type:	Rock		-
Sample Location, Identification and other required information:	BH-09 - S4 (9.65-9.75)	The methodology used to specify how data are recorded on the test data sheet(s)/form(s):	ASTM D6026
		-	-
		-	-

Mc, Mass of Container Plus Lid, g rounding .01	75.09
Mcms, Mass of Container with Lid plus Moist Specimen, g	125.33
Mcds, Mass of Container with lid plus Oven-Dried Specimen, g	125.13
Mw, Mass of Water, g	0.20
Ms, Mass of Oven-Dried Specimen, g	50.04
w, Water Content as a Percentage of Oven-Dried Mass, %	0
Mcas, Mass of Container with Lid plus Ashed Specimen, g	124.20
Ma, Mass of Ash, g	49.11
Furnace Temperature Used for Ash Content Determinations, °C	440

	Test Results	Requirements / Limits	Compliance Remark
Ac, Ash Content, %	98.1	-	-
Om, Organic Material, %	1.9	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS س ت ٤٠٣٠٢٢١١٦٨

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ACTS Serial No.	2176598
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the pH value

BS 1377-3:2018, Clause 12

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215806	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-09
ACTS Reference:	NOV2209090575	Start Depth, m:	9.65
IR / WIR / RFI Number:	-	End Depth, m:	9.75
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	07-Nov-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	11-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used:	Electrometric Method
Sample Located / Selected by:	Customer	Sampling Method Used:	-
Sample Collected / Extracted by:	ACTS	Sampling Plan Used if any:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Specification / Reference:	-
	-	-	-
Sample Location, Description, Identification and other required info.:	BH-09 - S4 (9.65-9.75)	-	-

	Test Results	Requirement / Limit	Compliance Remark
pH value of the soil suspension	8.5	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

س.ت. ٤٠٣٠٢٢١١٦٨

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ACTS Serial No.	2176599
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the Chloride Content

BS 1377-3:2018, Clause 9

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215806	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-09
ACTS Reference:	NOV2209090576	Start Depth, m:	9.65
IR / WIR / RFI Number:	-	End Depth, m:	9.75
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	07-Nov-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	11-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used (Clause 9.2 or 9.3)	9.2 Determination of Water-Soluble Chloride Content (Volhard's Method)
Sample Located / Selected by:	Customer	Water to Soil Ratio Used for Preparing the Soluble Extract for Clause 9.2 only:	water-soil ratio is 2 : 1
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-09 - S4 (9.65-9.75)	-	-

Trial	1	2
Percentage by Dry Mass of the Original Sample Passing the 2 mm Test Sieve, %	-	-
V_2, Volume of the Silver Nitrate Solution added (AgNO3), mL	40.0	-
V_3, Volume of Standardized Thiocyanate Solution Added, ml	2.7	-
C, Concentration of the Standardized Thiocyanate Solution, mol/L	0.1	-

	Test Results	Requirements / Limit	Compliance Remark
Chloride Ion Content, %	0.26	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS

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ACTS Serial No.	2176600
Reporting Date	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Gravimetric Method for Analysis of Acid or Water Extract or Groundwater Sulfate
BS 1377-3:2018, Clause 7.6

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215806	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-09
ACTS Reference:	NOV2209090577	Start Depth, m:	9.65
IR / WIR / RFI Number:	-	End Depth, m:	9.75
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	07-Nov-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	11-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type :	Rock	Method of Preparation of Test Specimen:	-
Sample Located / Selected by :	Customer	Procedure Used:	Determination of Water-Soluble Sulfate in Soil (WS)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-09 - S4 (9.65-9.75)	-	-

Trial	1	2
Percentage Finer than 2 mm in Original Sample, %	-	-
Mass of Each Test Specimen Used, g	50.000	-
Mass of Ignited Precipitate, g	0.085	-
pH of Water Extract, pH	8.1	-

Description	Test Result	Requirement / Limit	Compliance Remark
SO_3, Water-Soluble Sulfate Content,mg/L	**580**	-	-
SO_3, Water-Soluble Sulfate Content,%	**0.12**	-	-
SO_4, Water-Soluble Sulfate Content, mg/L	**700**	-	-
SO_4, Water-Soluble Sulfate Content,%	**0.14**	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS

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ACTS Serial No.:	2176601
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215806	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-09
IR / WIR / RFI / Number:	-	Start Depth, m:	10.50
ACTS Reference:	NOV2209090579	End Depth, m:	10.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	07-Nov-22	Sampling Method Used:	-
Testing Date:	08-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-09 - S5 (10.50-10.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	673.5
M_{cds}, Mass of Container and Oven Dry Specimen, g	570.4
M_c, Mass of Container, g	130.7
Mass of Moist Specimen, g	542.8
M_w, Mass of Water, g	103.1
M_s, Mass of Oven Dry Specimen, g	439.7
w, Water Content, %	23

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
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ACTS Serial No:	2176602
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

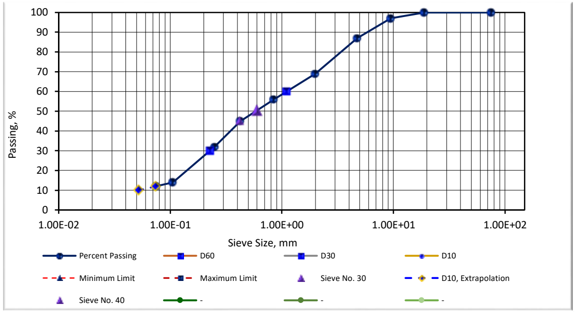
Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

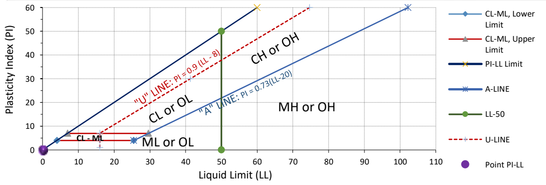
ASTM D2487-17 and ASTM D3282-15

PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215806	Test Pit No. / Borehole No.:	BH-09	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	10.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090580	End Depth, m:	10.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	07-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	09-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-09 - S5 (10.50-10.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	100	-	-	-	-
3/4 in.	19.0	0.0	0	0	100	-	-	-	-
3/8 in.	9.5	12.0	3	3	97	-	-	-	-
No. 4	4.75	44.4	10	13	87	-	-	-	-
No. 10	2.00	78.1	18	31	69	-	-	-	-
No. 20	0.850	58.3	13	44	56	-	-	-	-
No. 40	0.425	50.4	11	55	45	-	-	-	-
No. 60	0.250	56.9	13	68	32	-	-	-	-
No. 140	0.106	78.6	18	86	14	-	-	-	-
No. 200	0.075	10.4	2	88	12	-	-	-	-
Pan	-	50.6	12	100	0	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-





Mass of the Tested Sample,g	439.7	Moisture Content	23%

Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	13%	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	13%
Sand	75%	Coarse (2.00 - 4.75 mm)	18%
		Medium (0.425 - 2.00 mm)	24%
		Fine (0.075 - 0.425 mm)	33%
Fines	12%		

Cu	20.842
Cc	0.880
D_{60}, mm	1.106
D_{30}, mm	0.227
D_{10}, mm	0.053
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks: As per ASTM D2487 − 17 Note 9, It may be necessary to extrapolate the curve to obtain the D10 diameter.

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

ACTS
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ACTS Serial No.	2176603
Reporting Date	10-Nov-22
Page	1 of 1

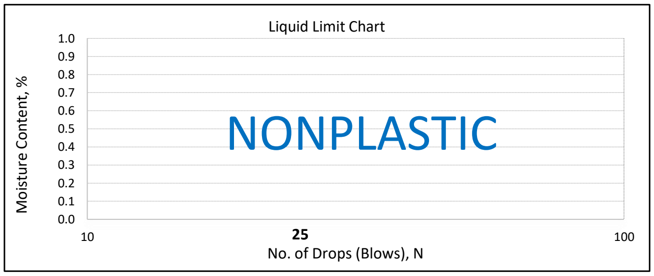
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215806	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	55
ACTS Reference:	NOV2209090581		As received Water Content, %:	23
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	07-Nov-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	09-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-09	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	10.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	10.95			-
Sample Location, Description, Ident. and other required info. :	BH-09 - S5 (10.50-10.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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ACTS Serial No.:	2176604
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215806	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-09
IR / WIR / RFI / Number:	-	Start Depth, m:	19.50
ACTS Reference:	NOV2209090582	End Depth, m:	19.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	07-Nov-22	Sampling Method Used:	-
Testing Date:	08-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-09 - S6 (19.50-19.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	541.6
M_{cds}, Mass of Container and Oven Dry Specimen, g	486.3
M_c, Mass of Container, g	104.4
Mass of Moist Specimen, g	437.2
M_w, Mass of Water, g	55.3
M_s, Mass of Oven Dry Specimen, g	381.9
w, Water Content, %	14

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No:	2176605
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

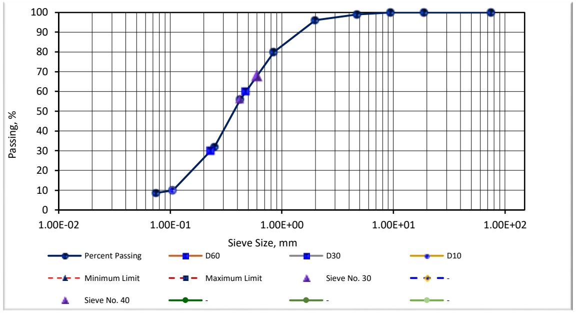
Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

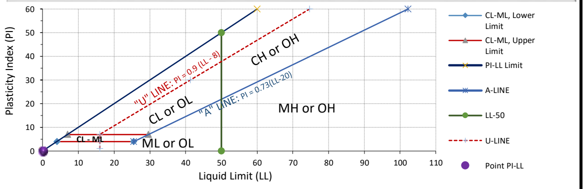
ASTM D2487-17 and ASTM D3282-15

PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215806	Test Pit No. / Borehole No.:	BH-09	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	19.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090583	End Depth, m:	19.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	07-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	09-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-09 - S6 (19.50-19.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	100	-	-	-	-
3/4 in.	19.0	0.0	0	0	100	-	-	-	-
3/8 in.	9.5	0.0	0	0	100	-	-	-	-
No. 4	4.75	2.4	1	1	99	-	-	-	-
No. 10	2.00	14.7	4	4	96	-	-	-	-
No. 20	0.850	59.0	15	20	80	-	-	-	-
No. 40	0.425	92.0	24	44	56	-	-	-	-
No. 60	0.250	90.1	24	68	32	-	-	-	-
No. 140	0.106	85.7	22	90	10	-	-	-	-
No. 200	0.075	5.1	1	91	9	-	-	-	-
Pan	-	32.9	9	100	0	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-





Mass of the Tested Sample,g	381.9	Moisture Content	14%

Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	1%	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	1%
Sand	90%	Coarse (2.00 - 4.75 mm)	3%
		Medium (0.425 - 2.00 mm)	40%
		Fine (0.075 - 0.425 mm)	47%
Fines	9%		

Cu	4.500
Cc	1.057
D_{60}, mm	0.477
D_{30}, mm	0.231
D_{10}, mm	0.106
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-3(0) Fine Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2176606
Reporting Date	10-Nov-22
Page	1 of 1

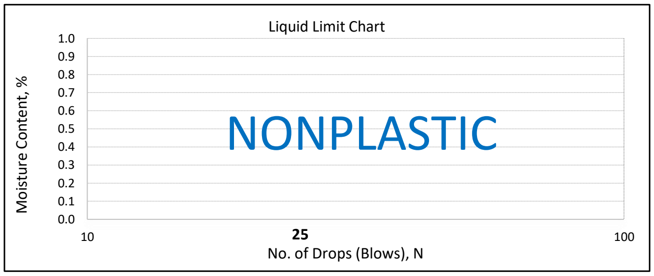
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215806	Description of Sample	Approximate Max Grain Size, mm:	4.75
Customer Reference:	-		Est. Sample Retained on 425µm, %:	44
ACTS Reference:	NOV2209090584		As received Water Content, %:	14
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	07-Nov-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	09-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-09	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	19.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	19.95			-
Sample Location, Description, Ident. and other required info. :	BH-09 - S6 (19.50-19.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Enceder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.	2176575
Reporting Date	10-Nov-22
Page	1 of 1

TEST REPORT

Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils

ASTM D2974 − $20^{\varepsilon 1}$

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215805	Name of Supplier / Source:	-
Customer Reference:	-	Drill Hole/Bore Hole Number:	BH-08
IR / WIR / RFI / Number:	-	Start Depth, m:	8.45
ACTS Reference:	NOV2209090550	End Depth, m:	9.50
Sampling Date:	08-Nov-22	Reference or Specification Used:	-
Receiving Date:	08-Nov-22	Test Method Used:	Method A (General Classification)
Testing Date:	11-Nov-22	Sampling Method Used:	-
Sample Selected / Located by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Name or Initial of Person(s) who performed the test:	Noushad
Sample Type:	Rock		-
Sample Location, Identification and other required information:	BH-08 - S1 (8.45-9.50)	The methodology used to specify how data are recorded on the test data sheet(s)/form(s):	ASTM D6026
		-	-
		-	-

Mc, Mass of Container Plus Lid, g rounding .01	78.11
Mcms, Mass of Container with Lid plus Moist Specimen, g	128.40
Mcds, Mass of Container with lid plus Oven-Dried Specimen, g	128.30
Mw, Mass of Water, g	0.10
Ms, Mass of Oven-Dried Specimen, g	50.19
w, Water Content as a Percentage of Oven-Dried Mass, %	0
Mcas, Mass of Container with Lid plus Ashed Specimen, g	127.60
Ma, Mass of Ash, g	49.49
Furnace Temperature Used for Ash Content Determinations, °C	440

	Test Results	Requirements / Limits	Compliance Remark
Ac, Ash Content, %	98.6	-	-
Om, Organic Material, %	1.4	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ٤٠٣٠٢٢١١٦٨

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-END OF REPORT-

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ACTS Serial No.	2176576
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Determination of the pH value

BS 1377-3:2018, Clause 12

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215805	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-08
ACTS Reference:	NOV2209090551	Start Depth, m:	8.45
IR / WIR / RFI Number:	-	End Depth, m:	9.50
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	08-Nov-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	11-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used:	Electrometric Method
Sample Located / Selected by:	Customer	Sampling Method Used:	-
Sample Collected / Extracted by:	ACTS	Sampling Plan Used if any:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Specification / Reference:	-
	-	-	-
Sample Location, Description, Identification and other required info.:	BH-08 - S1 (8.45-9.50)	-	-

	Test Results	Requirement / Limit	Compliance Remark
pH value of the soil suspension	8.3	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

س.ت. ٤٠٣٠٢٢١١٦٨

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ACTS Serial No.	2176577
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Determination of the Chloride Content

BS 1377-3:2018, Clause 9

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215805	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-08
ACTS Reference:	NOV2209090552	Start Depth, m:	8.45
IR / WIR / RFI Number:	-	End Depth, m:	9.50
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	08-Nov-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	11-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used (Clause 9.2 or 9.3)	9.2 Determination of Water-Soluble Chloride Content (Volhard's Method)
Sample Located / Selected by:	Customer	Water to Soil Ratio Used for Preparing the Soluble Extract for Clause 9.2 only:	water-soil ratio is 2 : 1
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad -	Sampling Plan Used if any: Specification / Reference:	- -
Sample Location, Description, Identification and other required info.:	BH-08 - S1 (8.45-9.50)	-	-

Trial	1	2
Percentage by Dry Mass of the Original Sample Passing the 2 mm Test Sieve, %	-	-
V_2, Volume of the Silver Nitrate Solution added (AgNO3), mL	40.0	-
V_3, Volume of Standardized Thiocyanate Solution Added, ml	1.9	-
C, Concentration of the Standardized Thiocyanate Solution, mol/L	0.1	-

	Test Results	Requirements / Limit	Compliance Remark
Chloride Ion Content, %	0.27	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS

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-END OF REPORT-

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ACTS Serial No.	2176578
Reporting Date	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Gravimetric Method for Analysis of Acid or Water Extract or Groundwater Sulfate
BS 1377-3:2018, Clause 7.6

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215805	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-08
ACTS Reference:	NOV2209090553	Start Depth, m:	8.45
IR / WIR / RFI Number:	-	End Depth, m:	9.50
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	08-Nov-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	11-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type :	Rock	Method of Preparation of Test Specimen:	-
Sample Located / Selected by :	Customer	Procedure Used:	Determination of Water-Soluble Sulfate in Soil (WS)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-08 - S1 (8.45-9.50)	-	-

Trial	1	2
Percentage Finer than 2 mm in Original Sample, %	-	-
Mass of Each Test Specimen Used, g	50.010	-
Mass of Ignited Precipitate, g	0.050	-
pH of Water Extract, pH	8.0	-

Description	Test Result	Requirement / Limit	Compliance Remark
SO_3, Water-Soluble Sulfate Content,mg/L	**340**	-	-
SO_3, Water-Soluble Sulfate Content,%	**0.07**	-	-
SO_4, Water-Soluble Sulfate Content, mg/L	**410**	-	-
SO_4, Water-Soluble Sulfate Content,%	**0.08**	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

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ACTS Serial No.:	2176579
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

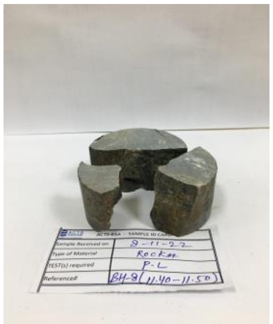
TWO No.:		ACTS-2215805	Name of Source / Supplier:		-
Customer Reference:		-	Bore Hole Number:		BH-08
ACTS Reference:		NOV2209090554	Start Depth, m:		11.40
IR / WIR / RFI / Number:		-	End Depth, m:		11.50
Sampling Date:		-	Storage (Curatorial History) Environment:		-
Receiving Date:		08-Nov-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:		11-Nov-22		Model:	Matest A125
Sample Type:		Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:		-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:		-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:		BH-08 - S2 (11.40-11.50)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.4
Total Actual Length / Thickness(Axial) of Specimen, mm		32.1
D, Platen Separation, mm		32.1
De^2, mm^2		2590
De, Equivalent Core Diameter, De, mm		50.9
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		31.2
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		12.0
F, Size Correction Factor		1.01
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**12.1**
(2) K, Index to Strength Conversion Factor		19.4
σ_c, Uniaxial Compressive Strength, MPa		**233**
(1) Strength Classification		**Extremely High**

PHOTOS

ACTS
Sample Received on
8-11-22
Type of Material
Rock#
TEST(s) required
P.L
Reference#
BH-8(11.40-11.50)

Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

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ACTS Serial No.:	2176580
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:		ACTS-2215805	Name of Source / Supplier:		-
Customer Reference:		-	Bore Hole Number:		BH-08
ACTS Reference:		NOV2209090555	Start Depth, m:		14.11
IR / WIR / RFI / Number:		-	End Depth, m:		14.20
Sampling Date:		-	Storage (Curatorial History) Environment:		-
Receiving Date:		08-Nov-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:		11-Nov-22		Model:	Matest A125
Sample Type:		Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:		-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:		-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:		BH-08 - S3 (14.11-14.20)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.4
Total Actual Length / Thickness(Axial) of Specimen, mm		32.3
D, Platen Separation, mm		32.3
De^2, mm^2		2610
De, Equivalent Core Diameter, De, mm		51.1
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		29.2
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		11.2
F, Size Correction Factor		1.01
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**11.3**
(2) K, Index to Strength Conversion Factor		19.4
σ_c, Uniaxial Compressive Strength, MPa		**217**
(1) Strength Classification		**Extremely High**

PHOTOS

Sample Received on 8-11-22
Type of Material Rock #
TEST(s) required P.L
Reference# BH-8(14.11-14.20)

Before

Sample Received on 8-11-22
Type of Material Rock #
TEST(s) required P.L
Reference# BH-8(14.11-14.20)

After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

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ACTS Serial No.:	2176581
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

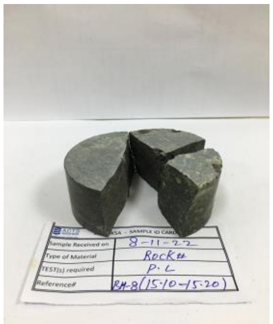
TWO No.:		ACTS-2215805	Name of Source / Supplier:	-
Customer Reference:		-	Bore Hole Number:	BH-08
ACTS Reference:		NOV2209090556	Start Depth, m:	15.10
IR / WIR / RFI / Number:		-	End Depth, m:	15.20
Sampling Date:		-	Storage (Curatorial History) Environment:	-
Receiving Date:		08-Nov-22	Test Apparatus Used – Name:	Digital Point Load Tester
Testing Date:		11-Nov-22	Test Apparatus Used – Model:	Matest A125
Sample Type:		Rock	Test Apparatus Used – Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):	Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:	-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:	-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Sample Location, Identification and other required information:		BH-08 - S4 (15.10-15.20)		

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.4
Total Actual Length / Thickness(Axial) of Specimen, mm		32.0
D, Platen Separation, mm		32.0
De^2, mm^2		2580
De, Equivalent Core Diameter, De, mm		50.8
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		33.0
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		12.8
F, Size Correction Factor		1.01
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**12.9**
(2) K, Index to Strength Conversion Factor		19.3
σ_c, Uniaxial Compressive Strength, MPa		**247**
(1) Strength Classification		**Extremely High**

PHOTOS

Sample Received on 8-11-22
Type of Material Rock#
TEST(s) required P.L
Reference# BH-8(15.10-15.20)

Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS
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ACTS Serial No.:	2176582
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215805	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-08
IR / WIR / RFI / Number:	-	Start Depth, m:	15.50
ACTS Reference:	NOV2209090557	End Depth, m:	15.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	08-Nov-22	Sampling Method Used:	-
Testing Date:	09-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-08 - S5 (15.50-15.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	959.4
M_{cds}, Mass of Container and Oven Dry Specimen, g	930.6
M_c, Mass of Container, g	380.6
Mass of Moist Specimen, g	578.8
M_w, Mass of Water, g	28.8
M_s, Mass of Oven Dry Specimen, g	550
w, Water Content, %	5

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS

LEGAL NOTICED:
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-END OF REPORT-

ACTS Serial No:	2176583
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215805	Test Pit No. / Borehole No.:	BH-08	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	15.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090558	End Depth, m:	15.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	08-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	10-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-08 - S5 (15.50-15.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	26.0	5	5	**95**	-	-	-	-
No. 4	4.75	51.2	9	14	**86**	-	-	-	-
No. 10	2.00	81.8	15	29	**71**	-	-	-	-
No. 20	0.850	95.6	17	46	**54**	-	-	-	-
No. 40	0.425	113.7	21	67	**33**	-	-	-	-
No. 60	0.250	96.6	18	85	**15**	-	-	-	-
No. 140	0.106	67.3	12	97	**3**	-	-	-	-
No. 200	0.075	4.4	1	98	**2**	-	-	-	-
Pan	-	13.4	2	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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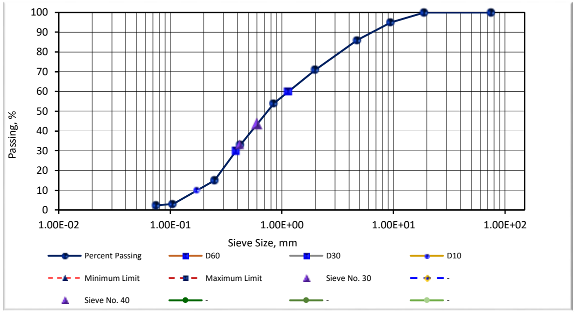

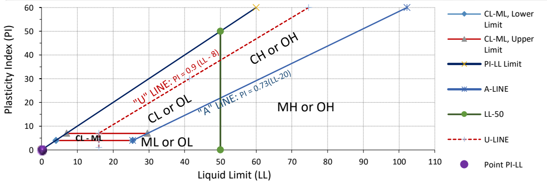

Mass of the Tested Sample,g	550.0	Moisture Content	5%

Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	**14%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	14%
Sand	**84%**	Coarse (2.00 - 4.75 mm)	15%
		Medium (0.425 - 2.00 mm)	38%
		Fine (0.075 - 0.425 mm)	31%
Fines	**2%**		

Cu	6.575
Cc	0.753
D_{60}, mm	1.150
D_{30}, mm	0.389
D_{10}, mm	0.175
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION		
SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand(SP)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.	2176584
Reporting Date	10-Nov-22
Page	1 of 1

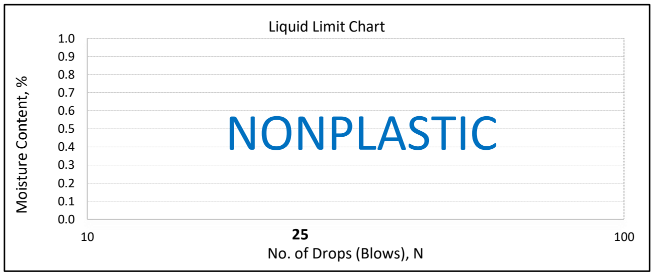
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215805	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	67
ACTS Reference:	NOV2209090559		As received Water Content, %:	5
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	08-Nov-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	10-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-08	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	15.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	15.95			-
Sample Location, Description, Ident. and other required info. :	BH-08 - S5 (15.50-15.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Enceder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2176585
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215805	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-08
IR / WIR / RFI / Number:	-	Start Depth, m:	30.50
ACTS Reference:	NOV2209090560	End Depth, m:	30.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	08-Nov-22	Sampling Method Used:	-
Testing Date:	09-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-08 - S6 (30.50-30.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	797.3
M_{cds}, Mass of Container and Oven Dry Specimen, g	771.6
M_c, Mass of Container, g	371.3
Mass of Moist Specimen, g	426
M_w, Mass of Water, g	25.7
M_s, Mass of Oven Dry Specimen, g	400.3
w, Water Content, %	6

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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ACTS
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ACTS Serial No:	2176586
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215805	Test Pit No. / Borehole No.:	BH-08	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	30.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090561	End Depth, m:	30.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	08-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	10-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-08 - S6 (30.50-30.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	100	-	-	-	-
1 in.	25.0	0.0	0	0	100	-	-	-	-
3/4 in.	19.0	14.7	4	4	96	-	-	-	-
3/8 in.	9.5	18.3	5	8	92	-	-	-	-
No. 4	4.75	39.5	10	18	82	-	-	-	-
No. 10	2.00	61.4	15	33	67	-	-	-	-
No. 20	0.850	80.1	20	53	47	-	-	-	-
No. 40	0.425	71.4	18	71	29	-	-	-	-
No. 60	0.250	53.8	13	85	15	-	-	-	-
No. 140	0.106	43.3	11	96	4	-	-	-	-
No. 200	0.075	3.8	1	97	3	-	-	-	-
Pan	-	14.0	3	100	0	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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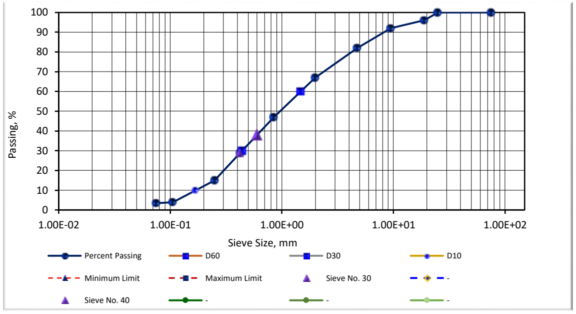
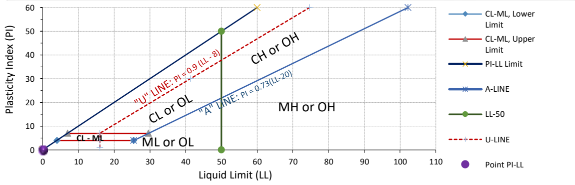
-	-	-	-	-	-	-	-	-	-





Mass of the Tested Sample,g	400.3	Moisture Content	6%

Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	18%	Coarse (19 - 75 mm)	4%
		Fine (4.75 - 19 mm)	14%
Sand	79%	Coarse (2.00 - 4.75 mm)	15%
		Medium (0.425 - 2.00 mm)	38%
		Fine (0.075 - 0.425 mm)	26%
Fines	3%		

Cu	8.758
Cc	0.777
D_{60}, mm	1.482
D_{30}, mm	0.442
D_{10}, mm	0.169
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION		
	ASTM D 2487	**Poorly Graded Sand with Gravel(SP)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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ACTS Serial No.	2176587
Reporting Date	10-Nov-22
Page	1 of 1

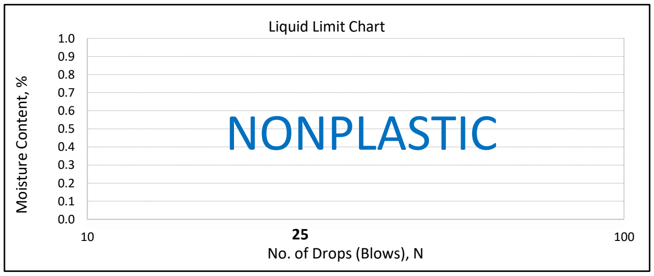
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215805	Description of Sample	Approximate Max Grain Size, mm:	19
Customer Reference:	-		Est. Sample Retained on 425μm, %:	71
ACTS Reference:	NOV2209090562		As received Water Content, %:	6
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	08-Nov-22	Method of Removing Particles Larger than the 425-μm (No. 40) Sieve:		-
Testing Date:	10-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-08	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	30.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	30.95			-
Sample Location, Description, Ident. and other required info. :	BH-08 - S6 (30.50-30.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Enceder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2176588
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215805	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-08
IR / WIR / RFI / Number:	-	Start Depth, m:	32.00
ACTS Reference:	NOV2209090563	End Depth, m:	32.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	08-Nov-22	Sampling Method Used:	-
Testing Date:	09-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-08 - S7 (32.00-32.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	960.3
M_{cds}, Mass of Container and Oven Dry Specimen, g	920.6
M_c, Mass of Container, g	559.6
Mass of Moist Specimen, g	400.7
M_w, Mass of Water, g	39.7
M_s, Mass of Oven Dry Specimen, g	361
w, Water Content, %	11

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No:	2176589
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215805	Test Pit No. / Borehole No.:	BH-08	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	32.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090564	End Depth, m:	32.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	08-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	10-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-08 - S7 (32.00-32.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	100	-	-	-	-
3/4 in.	19.0	0.0	0	0	100	-	-	-	-
3/8 in.	9.5	0.0	0	0	100	-	-	-	-
No. 4	4.75	7.0	2	2	98	-	-	-	-
No. 10	2.00	56.8	16	18	82	-	-	-	-
No. 20	0.850	86.8	24	42	58	-	-	-	-
No. 40	0.425	56.6	16	57	43	-	-	-	-
No. 60	0.250	57.6	16	73	27	-	-	-	-
No. 140	0.106	61.6	17	90	10	-	-	-	-
No. 200	0.075	7.0	2	92	8	-	-	-	-
Pan	-	27.6	8	100	0	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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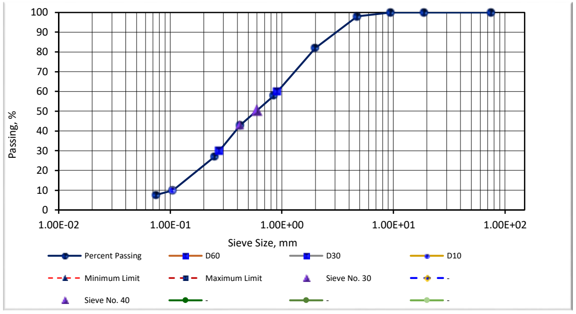

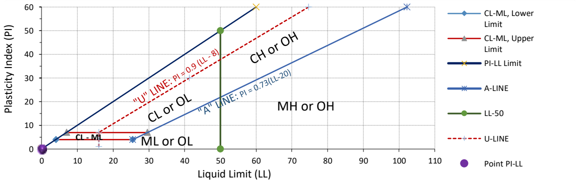

Mass of the Tested Sample,g	361.0	Moisture Content	11%

Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	2%	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	2%
Sand	90%	Coarse (2.00 - 4.75 mm)	16%
		Medium (0.425 - 2.00 mm)	39%
		Fine (0.075 - 0.425 mm)	35%
Fines	8%		

Cu	8.612
Cc	0.788
D_{60}, mm	0.913
D_{30}, mm	0.276
D_{10}, mm	0.106
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION		
	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	ACTS M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.	2176590
Reporting Date	10-Nov-22
Page	1 of 1

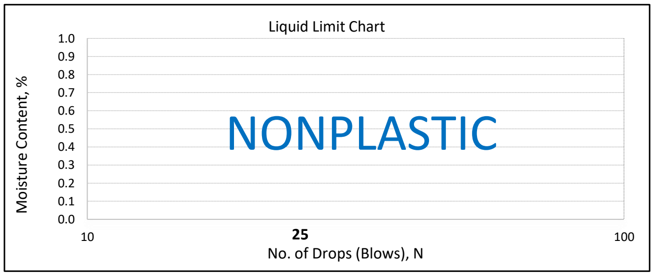
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215805	Description of Sample	Approximate Max Grain Size, mm:	4.75
Customer Reference:	-		Est. Sample Retained on 425µm, %:	57
ACTS Reference:	NOV2209090565		As received Water Content, %:	11
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	08-Nov-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	10-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-08	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	32.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	32.45			-
Sample Location, Description, Ident. and other required info. :	BH-08 - S7 (32.00-32.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.:	2176591
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215805	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-08
IR / WIR / RFI / Number:	-	Start Depth, m:	39.50
ACTS Reference:	NOV2209090566	End Depth, m:	39.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	08-Nov-22	Sampling Method Used:	-
Testing Date:	09-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-08 - S8 (39.50-39.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	927.8
M_{cds}, Mass of Container and Oven Dry Specimen, g	911.6
M_c, Mass of Container, g	540.8
Mass of Moist Specimen, g	387
M_w, Mass of Water, g	16.2
M_s, Mass of Oven Dry Specimen, g	370.8
w, Water Content, %	4

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
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ACTS Serial No:	2176592
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215805	Test Pit No. / Borehole No.:	BH-08	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	39.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090567	End Depth, m:	39.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	08-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	10-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-08 - S8 (39.50-39.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	4.1	1	1	**99**	-	-	-	-
No. 4	4.75	16.9	5	6	**94**	-	-	-	-
No. 10	2.00	58.1	16	21	**79**	-	-	-	-
No. 20	0.850	78.2	21	42	**58**	-	-	-	-
No. 40	0.425	58.3	16	58	**42**	-	-	-	-
No. 60	0.250	49.0	13	71	**29**	-	-	-	-
No. 140	0.106	63.2	17	88	**12**	-	-	-	-
No. 200	0.075	7.8	2	91	**9**	-	-	-	-
Pan	-	35.2	9	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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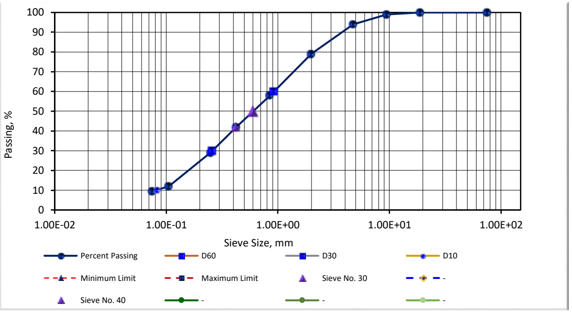
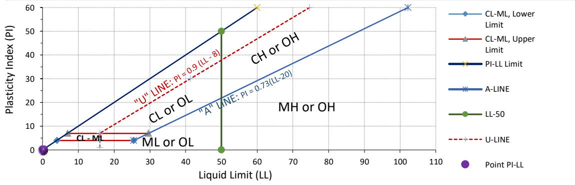
Mass of the Tested Sample,g	370.8	Moisture Content	4%





Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	**6%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	6%
Sand	**85%**	Coarse (2.00 - 4.75 mm)	15%
		Medium (0.425 - 2.00 mm)	37%
		Fine (0.075 - 0.425 mm)	33%
Fines	**9%**		

Cu	10.956
Cc	0.874
D_{60}, mm	0.922
D_{30}, mm	0.260
D_{10}, mm	0.084
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.	2176593
Reporting Date	10-Nov-22
Page	1 of 1

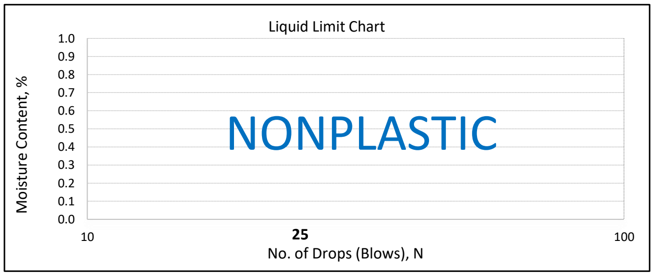
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215805	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	58
ACTS Reference:	NOV2209090568		As received Water Content, %:	4
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	08-Nov-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	10-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-08	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	39.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	39.95			-
Sample Location, Description, Ident. and other required info. :	BH-08 - S8 (39.50-39.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Enceder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
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ACTS Serial No.:	2176555
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215804	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-06
IR / WIR / RFI / Number:	-	Start Depth, m:	5.00
ACTS Reference:	NOV2209090530	End Depth, m:	5.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	06-Nov-22	Sampling Method Used:	-
Testing Date:	06-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-06 - S1 (5.00-5.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	669.2
M_{cds}, Mass of Container and Oven Dry Specimen, g	651.3
M_c, Mass of Container, g	123.2
Mass of Moist Specimen, g	546
M_w, Mass of Water, g	17.9
M_s, Mass of Oven Dry Specimen, g	528.1
w, Water Content, %	3

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials

ACTS Serial No:	2176556
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215804	Test Pit No. / Borehole No.:	BH-06	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	5.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090531	End Depth, m:	5.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	06-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	07-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-06 - S1 (5.00-5.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	100	-	-	-	-
3/4 in.	19.0	0.0	0	0	100	-	-	-	-
No. 4	4.75	0.0	0	0	100	-	-	-	-
No. 10	2.00	6.3	1	1	99	-	-	-	-
No. 20	0.850	29.6	6	7	93	-	-	-	-
No. 40	0.425	77.9	15	22	78	-	-	-	-
No. 60	0.250	135.1	26	47	53	-	-	-	-
No. 140	0.106	173.8	33	80	20	-	-	-	-
No. 200	0.075	27.2	5	85	15	-	-	-	-
Pan	-	78.2	15	100	0	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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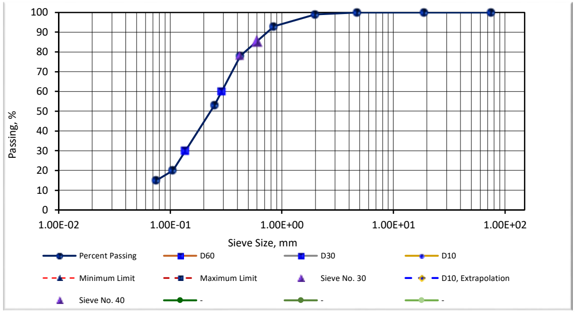

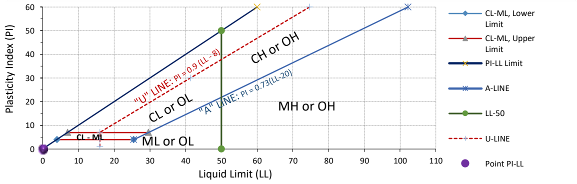

Mass of the Tested Sample,g	528.1	Moisture Content	3%

Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	0%	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	85%	Coarse (2.00 - 4.75 mm)	1%
		Medium (0.425 - 2.00 mm)	21%
		Fine (0.075 - 0.425 mm)	63%
Fines	15%		

Cu	-
Cc	-
D_{60}, mm	0.290
D_{30}, mm	0.137
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Silty Sand(SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-2-4(0) Silty or Clayey Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
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ACTS Serial No.	2176557
Reporting Date	10-Nov-22
Page	1 of 1

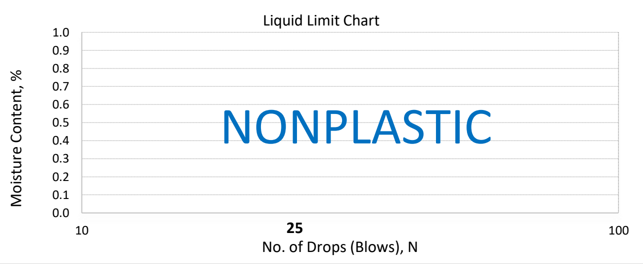
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215804	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425µm, %:	22
ACTS Reference:	NOV2209090532		As received Water Content, %:	3
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	06-Nov-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	07-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-06	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	5.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	5.45			-
Sample Location, Description, Ident. and other required info. :	BH-06 - S1 (5.00-5.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.:	2176558
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215804	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-06
IR / WIR / RFI / Number:	-	Start Depth, m:	14.00
ACTS Reference:	NOV2209090533	End Depth, m:	14.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	06-Nov-22	Sampling Method Used:	-
Testing Date:	06-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-06 - S2 (14.00-14.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	756.8
M_{cds}, Mass of Container and Oven Dry Specimen, g	741.7
M_c, Mass of Container, g	307.4
Mass of Moist Specimen, g	449.4
M_w, Mass of Water, g	15.1
M_s, Mass of Oven Dry Specimen, g	434.3
w, Water Content, %	3

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No:	2176559
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

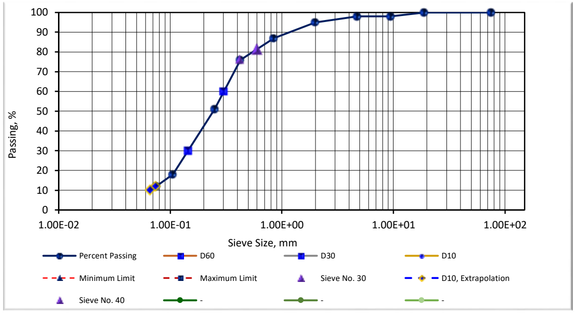
ASTM D2487-17 and ASTM D3282-15

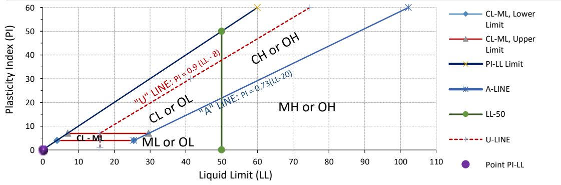
PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215804	Test Pit No. / Borehole No.:	BH-06	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	14.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090534	End Depth, m:	14.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	06-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	07-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-06 - S2 (14.00-14.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	7.0	2	2	**98**	-	-	-	-
No. 4	4.75	0.6	0	2	**98**	-	-	-	-
No. 10	2.00	14.9	3	5	**95**	-	-	-	-
No. 20	0.850	34.2	8	13	**87**	-	-	-	-
No. 40	0.425	45.4	10	24	**76**	-	-	-	-
No. 60	0.250	109.2	25	49	**51**	-	-	-	-
No. 140	0.106	145.9	34	82	**18**	-	-	-	-
No. 200	0.075	25.8	6	88	**12**	-	-	-	-
Pan	-	51.3	12	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	434.3	Moisture Content	3%





Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	**2%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	2%
Sand	**86%**	Coarse (2.00 - 4.75 mm)	3%
		Medium (0.425 - 2.00 mm)	19%
		Fine (0.075 - 0.425 mm)	64%
Fines	**12%**		

Cu	4.528
Cc	1.037
D_{60}, mm	0.303
D_{30}, mm	0.145
D_{10}, mm	0.067
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-2-4(0) Silty or Clayey Gravel and Sand**

Remarks: As per ASTM D2487 − 17 Note 9, It may be necessary to extrapolate the curve to obtain the D10 diameter.

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
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ACTS Serial No.	2176560
Reporting Date	10-Nov-22
Page	1 of 1

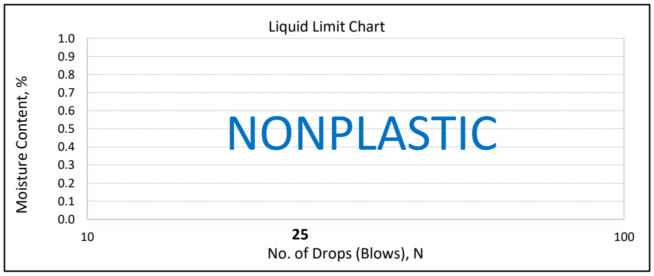
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215804	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	24
ACTS Reference:	NOV2209090535		As received Water Content, %:	3
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	06-Nov-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	07-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-06	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	14.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	14.45			-
Sample Location, Description, Ident. and other required info. :	BH-06 - S2 (14.00-14.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Enceder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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ACTS
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ACTS Serial No.:	2176561
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:		ACTS-2215804	Name of Source / Supplier:	-
Customer Reference:		-	Bore Hole Number:	BH-06
ACTS Reference:		NOV2209090536	Start Depth, m:	10.00
IR / WIR / RFI / Number:		-	End Depth, m:	10.20
Sampling Date:		-	Storage (Curatorial History) Environment:	-
Receiving Date:		06-Nov-22	Test Apparatus Used – Name:	Digital Point Load Tester
Testing Date:		07-Nov-22	Test Apparatus Used – Model:	Matest A125
Sample Type:		Rock	Test Apparatus Used – Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):	Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:	-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:	-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Sample Location, Identification and other required information:		BH-06 - S3 (10.00-10.20)		

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		83.1
Total Actual Length / Thickness(Axial) of Specimen, mm		32.1
D, Platen Separation, mm		32.1
De^2, mm^2		3400
De, Equivalent Core Diameter, De, mm		58.3
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		16.2
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		4.76
F, Size Correction Factor		1.07
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**5.09**
(2) K, Index to Strength Conversion Factor		19.4
σ_c, Uniaxial Compressive Strength, MPa		**92.3**
(1) Strength Classification		**Very High**

PHOTOS

Sample Received on
6-11-22
Type of Material
Rock #
TEST(s) required
P.L
Reference#
BH-06 (10.00-10.20)

Before

SAMPLE ID CARD
Sample Received on
6-11-22
Type of Material
Rock #
TEST(s) required
P.L
Reference#
BH-06 (10.00-10.20)

After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:

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ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2176562
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:		ACTS-2215804	Name of Source / Supplier:	-
Customer Reference:		-	Bore Hole Number:	BH-06
ACTS Reference:		NOV2209090537	Start Depth, m:	11.50
IR / WIR / RFI / Number:		-	End Depth, m:	11.60
Sampling Date:		-	Storage (Curatorial History) Environment:	-
Receiving Date:		06-Nov-22	Test Apparatus Used – Name:	Digital Point Load Tester
Testing Date:		07-Nov-22	Test Apparatus Used – Model:	Matest A125
Sample Type:		Rock	Test Apparatus Used – Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):	Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:	-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:	-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Sample Location, Identification and other required information:		BH-06 - S4 (11.50-11.60)		

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		32.3
D, Platen Separation, mm		32.3
De^2, mm^2		2610
De, Equivalent Core Diameter, De, mm		51.1
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		22.6
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		8.66
F, Size Correction Factor		1.01
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**8.75**
(2) K, Index to Strength Conversion Factor		19.4
σ_c, Uniaxial Compressive Strength, MPa		**168**
(1) Strength Classification		**Very High**

PHOTOS

ACTS
ACTS-KSA
Sample Received on
6-11-22
Type of Material
Rock #
TEST(s) required
P.L
Reference#
BH-06(11.50-11.60)

Before

ACTS
Sample Received on
6-11-22
Type of Material
Rock #
TEST(s) required
P.L
Reference#
BH-06(11.50-11.60)

After

Remark(s):
(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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-END REPORT-

ACTS Serial No.:	2176563
Reporting Date:	10-Nov-22
Page	1 of 1

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

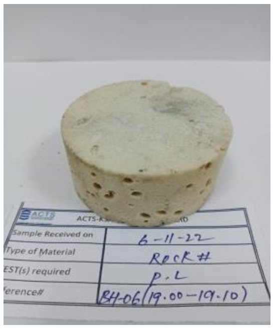
ASTM D5731 − 16

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

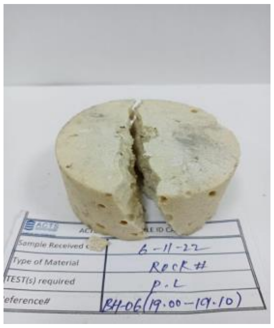
TWO No.:	ACTS-2215804	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-06
ACTS Reference:	NOV2209090538	Start Depth, m:		19.00
IR / WIR / RFI / Number:	-	End Depth, m:		19.10
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	06-Nov-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	07-Nov-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) – Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) – Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-06 - S5 (19.00-19.10)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		34.0
D, Platen Separation, mm		34.0
De^2, mm^2		2750
De, Equivalent Core Diameter, De, mm		52.4
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		3.70
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		1.35
F, Size Correction Factor		1.02
Is$_{(50)}$, Corrected Point Load Strength Index, MPa		**1.38**
(2) K, Index to Strength Conversion Factor		19.7
σ_c, Uniaxial Compressive Strength, MPa		**26.6**
(1) Strength Classification		**High**

PHOTOS



Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2176564
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215804	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-06
IR / WIR / RFI / Number:	-	Start Depth, m:	21.50
ACTS Reference:	NOV2209090539	End Depth, m:	21.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	06-Nov-22	Sampling Method Used:	-
Testing Date:	06-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-06 - S6 (21.50-21.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	910.2
M_{cds}, Mass of Container and Oven Dry Specimen, g	882.5
M_c, Mass of Container, g	566.4
Mass of Moist Specimen, g	343.8
M_w, Mass of Water, g	27.7
M_s, Mass of Oven Dry Specimen, g	316.1
w, Water Content, %	9

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

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ACTS Serial No:	2176565
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215804	Test Pit No. / Borehole No.:	BH-06	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	21.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090540	End Depth, m:	21.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	06-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	07-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-06 - S6 (21.50-21.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-				Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum		
6 in.	150.0	-	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-	-
3/8 in.	9.5	3.6	1	1	**99**	-	-	-	-	-
No. 4	4.75	0.0	0	1	**99**	-	-	-	-	-
No. 10	2.00	17.4	6	7	**93**	-	-	-	-	-
No. 20	0.850	47.9	15	22	**78**	-	-	-	-	-
No. 40	0.425	48.0	15	37	**63**	-	-	-	-	-
No. 60	0.250	68.6	22	59	**41**	-	-	-	-	-
No. 140	0.106	91.3	29	88	**12**	-	-	-	-	-
No. 200	0.075	10.5	3	91	**9**	-	-	-	-	-
Pan	-	28.8	9	100	**0**	-	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-	-
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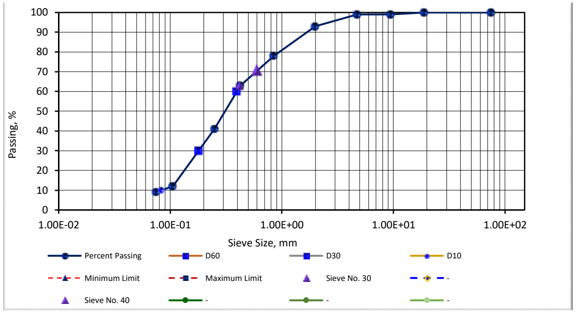

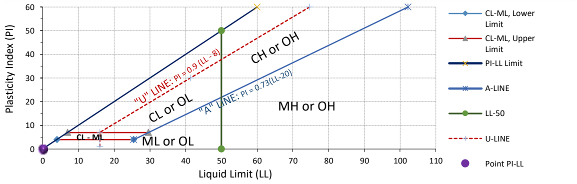

Mass of the Tested Sample,g	316.1	Moisture Content	9%

Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	**1%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	1%
Sand	**90%**	Coarse (2.00 - 4.75 mm)	6%
		Medium (0.425 - 2.00 mm)	30%
		Fine (0.075 - 0.425 mm)	54%
Fines	**9%**		

Cu	4.697
Cc	0.980
D_{60}, mm	0.395
D_{30}, mm	0.181
D_{10}, mm	0.084
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION		
	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-3(0) Fine Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.	2176566
Reporting Date	10-Nov-22
Page	1 of 1

TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

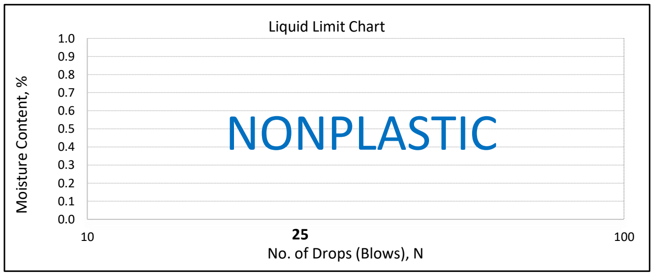
PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215804	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	37
ACTS Reference:	NOV2209090541		As received Water Content, %:	9

IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):	-
Sampling Date:	-	Specimen Preparation Procedure Used:	Wet Preparation
Receiving Date:	06-Nov-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:	-
Testing Date:	07-Nov-22	Drying Method Used (During Preparation of Specimen):	Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Reference / Specification:	-
Name of Source / Supplier	-	Type of Soil (According to Specification):	-
Test Pit No. / Borehole No:	BH-06	Methodology used to specify how data are recorded on the test data:	-
Start Depth, m:	21.50	Name or Initials of the person(s)who prepared and tested the samples:	Aftab
End Depth, m:	21.95		-
Sample Location, Description, Ident. and other required info. :	BH-06 - S6 (21.50-21.95)		

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Enceder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2176567
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215804	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-06
IR / WIR / RFI / Number:	-	Start Depth, m:	36.50
ACTS Reference:	NOV2209090542	End Depth, m:	36.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	06-Nov-22	Sampling Method Used:	-
Testing Date:	06-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-06 - S9 (36.50-36.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	660.2
M_{cds}, Mass of Container and Oven Dry Specimen, g	597.9
M_c, Mass of Container, g	132.2
Mass of Moist Specimen, g	528
M_w, Mass of Water, g	62.3
M_s, Mass of Oven Dry Specimen, g	465.7
w, Water Content, %	13

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No:	2176568
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

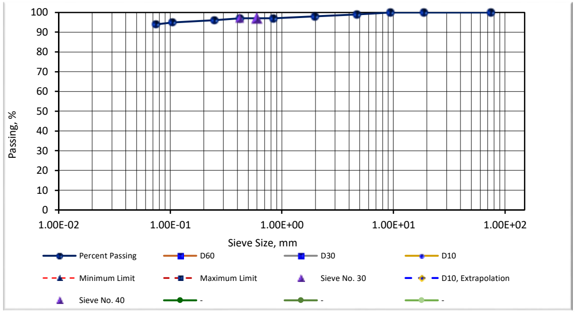
ASTM D2487-17 and ASTM D3282-15

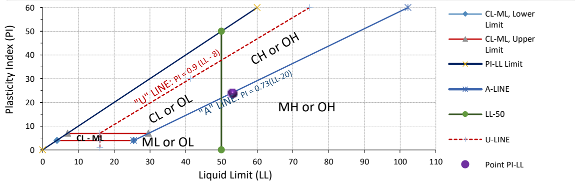
PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215804	Test Pit No. / Borehole No.:	BH-06	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	36.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2209090543	End Depth, m:	36.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	06-Nov-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	07-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-06 - S9 (36.50-36.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	100	-	-	-	-
3/4 in.	19.0	0.0	0	0	100	-	-	-	-
3/8 in.	9.5	0.0	0	0	100	-	-	-	-
No. 4	4.75	4.6	1	1	99	-	-	-	-
No. 10	2.00	3.8	1	2	98	-	-	-	-
No. 20	0.850	3.3	1	3	97	-	-	-	-
No. 40	0.425	2.5	1	3	97	-	-	-	-
No. 60	0.250	2.2	0	4	96	-	-	-	-
No. 140	0.106	6.0	1	5	95	-	-	-	-
No. 200	0.075	3.5	1	6	94	-	-	-	-
Pan	-	439.8	94	100	0	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	465.7	Moisture Content	13%





Description	Test Result	Description (ASTM D2487)	Test Result
Gravel	1%	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	1%
Sand	5%	Coarse (2.00 - 4.75 mm)	1%
		Medium (0.425 - 2.00 mm)	1%
		Fine (0.075 - 0.425 mm)	3%
Fines	94%		

Cu	-
Cc	-
D_{60}, mm	-
D_{30}, mm	-
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	53
	PL	29
	PI	24
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Elastic Silt(MH)**
	ASTM D 3282 (AASHTO M145-3)	**A-7-6(27) Clayey Soils**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

ACTS
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ACTS Serial No.	2176569
Reporting Date	10-Nov-22
Page	1 of 1

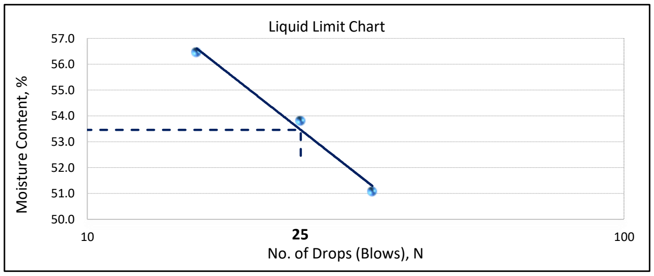
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215804	Description of Sample	Approximate Max Grain Size, mm:	4.75
Customer Reference:	-		Est. Sample Retained on 425µm, %:	3
ACTS Reference:	NOV2209090544		As received Water Content, %:	13
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	06-Nov-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	07-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-06	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	36.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	36.95			-
Sample Location, Description, Ident. and other required info. :	BH-06 - S9 (36.50-36.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	16	25	34	---	---	---
Container Ref.	D-5	D-6	A-6	-	C-4	C-5
A, Mass of Container, g	34.33	36.86	38.78	-	63.21	62.58
B, Mass of Wet Soil + Container, g	43.28	48.58	54.81	-	70.15	69.85
C, Mass of Dry Soil + Container, g	40.05	44.48	49.39	-	68.61	68.23
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	56.5	53.8	51.1	-	28.5	28.7
Limits	Liquid (LL) =		53	Plastic (PL) =		29
Plasticity Index (PI)	PI = (LL - PL) =		24			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**53**	-	-
PL	**29**	-	-
PI	**24**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.:	2176570
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

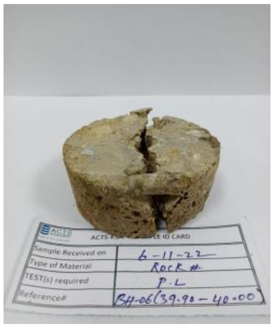
TWO No.:	ACTS-2215804	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-06
ACTS Reference:	NOV2209090545	Start Depth, m:		39.90
IR / WIR / RFI / Number:	-	End Depth, m:		40.00
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	06-Nov-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	07-Nov-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) — Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) — Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-06 - S10 (39.90-40.00)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		33.5
D, Platen Separation, mm		33.5
De^2, mm^2		2710
De, Equivalent Core Diameter, De, mm		52.1
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		2.00
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		0.738
F, Size Correction Factor		1.02
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**0.753**
(2) K, Index to Strength Conversion Factor		19.6
σ_c, Uniaxial Compressive Strength, MPa		**14.5**
(1) Strength Classification		**Medium**

PHOTOS

ACTS
Sample Received on
6-11-22
Type of Material
Rock #
TEST(s) required
P.L
Reference#
BH-06(39.90 – 40.00)

Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2176571
Reporting Date	10-Nov-22
Page	1 of 1

TEST REPORT

Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils

ASTM D2974 − $20^{\varepsilon 1}$

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215804	Name of Supplier / Source:	-
Customer Reference:	-	Drill Hole/Bore Hole Number:	BH-06
IR / WIR / RFI / Number:	-	Start Depth, m:	39.90
ACTS Reference:	NOV2209090546	End Depth, m:	40.00
Sampling Date:	06-Nov-22	Reference or Specification Used:	-
Receiving Date:	06-Nov-22	Test Method Used:	Method A (General Classification)
Testing Date:	11-Nov-22	Sampling Method Used:	-
Sample Selected / Located by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Name or Initial of Person(s) who performed the test:	Noushad
Sample Type:	Rock		-
Sample Location, Identification and other required information:	BH-06 - S10 (39.90-40.00)	The methodology used to specify how data are recorded on the test data sheet(s)/form(s):	ASTM D6026
		-	-
		-	-

Mc, Mass of Container Plus Lid, g rounding .01	76.99
Mcms, Mass of Container with Lid plus Moist Specimen, g	127.40
Mcds, Mass of Container with lid plus Oven-Dried Specimen, g	127.19
Mw, Mass of Water, g	0.21
Ms, Mass of Oven-Dried Specimen, g	50.20
w, Water Content as a Percentage of Oven-Dried Mass, %	0
Mcas, Mass of Container with Lid plus Ashed Specimen, g	126.75
Ma, Mass of Ash, g	49.76
Furnace Temperature Used for Ash Content Determinations, °C	440

	Test Results	Requirements / Limits	Compliance Remark
Ac, Ash Content, %	99.1	-	-
Om, Organic Material, %	0.9	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS س.ت ٤٠٣٠٢٢١١٦٨

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ACTS Serial No.	2176572
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the pH value

BS 1377-3:2018, Clause 12

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215804	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-06
ACTS Reference:	NOV2209090547	Start Depth, m:	39.90
IR / WIR / RFI Number:	-	End Depth, m:	40.00
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	06-Nov-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	11-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used:	Electrometric Method
Sample Located / Selected by:	Customer	Sampling Method Used:	-
Sample Collected / Extracted by:	ACTS	Sampling Plan Used if any:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Specification / Reference:	-
	-	-	-
Sample Location, Description, Identification and other required info.:	BH-06 - S10 (39.90-40.00)	-	-

	Test Results	Requirement / Limit	Compliance Remark
pH value of the soil suspension	8.3	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2176573
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the Chloride Content

BS 1377-3:2018, Clause 9

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215804	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-06
ACTS Reference:	NOV2209090548	Start Depth, m:	39.90
IR / WIR / RFI Number:	-	End Depth, m:	40.00
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	06-Nov-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	11-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used (Clause 9.2 or 9.3)	9.2 Determination of Water-Soluble Chloride Content (Volhard's Method)
Sample Located / Selected by:	Customer	Water to Soil Ratio Used for Preparing the Soluble Extract for Clause 9.2 only:	water-soil ratio is 2 : 1
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-06 - S10 (39.90-40.00)	-	-

Trial	1	2
Percentage by Dry Mass of the Original Sample Passing the 2 mm Test Sieve, %	-	-
V_2, Volume of the Silver Nitrate Solution added (AgNO3), mL	55.0	-
V_3, Volume of Standardized Thiocyanate Solution Added, ml	3.0	-
C, Concentration of the Standardized Thiocyanate Solution, mol/L	0.1	-

	Test Results	Requirements / Limit	Compliance Remark
Chloride Ion Content, %	0.37	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2176574
Reporting Date	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Gravimetric Method for Analysis of Acid or Water Extract or Groundwater Sulfate
BS 1377-3:2018, Clause 7.6

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215804	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-06
ACTS Reference:	NOV2209090549	Start Depth, m:	39.90
IR / WIR / RFI Number:	-	End Depth, m:	40.00
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	06-Nov-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	11-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type :	Rock	Method of Preparation of Test Specimen:	-
Sample Located / Selected by :	Customer	Procedure Used:	Determination of Water-Soluble Sulfate in Soil (WS)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-06 - S10 (39.90-40.00)	-	-

Trial	1	2
Percentage Finer than 2 mm in Original Sample, %	-	-
Mass of Each Test Specimen Used, g	50.000	-
Mass of Ignited Precipitate, g	0.058	-
pH of Water Extract, pH	8.0	-

Description	Test Result	Requirement / Limit	Compliance Remark
SO_3, Water-Soluble Sulfate Content,mg/L	**400**	-	-
SO_3, Water-Soluble Sulfate Content,%	**0.08**	-	-
SO_4, Water-Soluble Sulfate Content, mg/L	**480**	-	-
SO_4, Water-Soluble Sulfate Content,%	**0.10**	-	-

Remark(s):

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The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.:	2176406
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

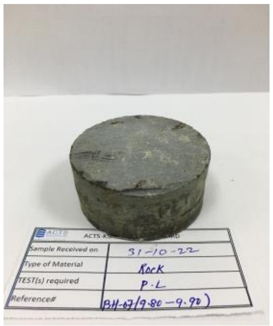
ASTM D5731 − 16

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

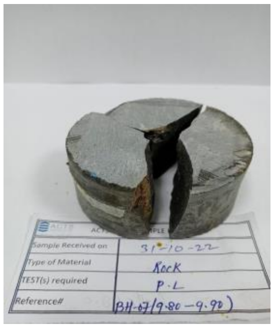
TWO No.:	ACTS-2215760	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-07
ACTS Reference:	NOV2208080710	Start Depth, m:		9.80
IR / WIR / RFI / Number:	-	End Depth, m:		9.90
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	31-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	06-Nov-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) — Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) — Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-07 - S1 (9.80-9.90)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		64.0
Total Actual Length / Thickness(Axial) of Specimen, mm		35.0
D, Platen Separation, mm		35.0
De^2, mm^2		2850
De, Equivalent Core Diameter, De, mm		53.4
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		28.0
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		9.82
F, Size Correction Factor		1.03
Is$_{(50)}$, Corrected Point Load Strength Index, MPa		**10.1**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**194**
(1) Strength Classification		**Very High**

PHOTOS



Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS Serial No.:	2176407
Reporting Date:	10-Nov-22
Page	1 of 1

Build on our credentials

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:		ACTS-2215760	Name of Source / Supplier:		-
Customer Reference:		-	Bore Hole Number:		BH-07
ACTS Reference:		NOV2208080711	Start Depth, m:		18.70
IR / WIR / RFI / Number:		-	End Depth, m:		18.80
Sampling Date:		-	Storage (Curatorial History) Environment:		-
Receiving Date:		31-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:		06-Nov-22		Model:	Matest A125
Sample Type:		Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:		-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:		-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:		BH-07 - S2 (18.70-18.80)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		64.0
Total Actual Length / Thickness(Axial) of Specimen, mm		32.3
D, Platen Separation, mm		32.3
De^2, mm^2		2630
De, Equivalent Core Diameter, De, mm		51.3
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		24.1
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		9.16
F, Size Correction Factor		1.01
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**9.25**
(2) K, Index to Strength Conversion Factor		19.4
σ_c, Uniaxial Compressive Strength, MPa		**178**
(1) Strength Classification		**Very High**

PHOTOS

ACTS
Sample Received on
31-10-22
Type of Material
Rock #
TEST(s) required
P.L
Reference#
BH-07(18.70-18.80)

Before

ACTS
Sample Received on
31-10-22
Type of Material
Rock #
TEST(s) required
P.L
Reference#
BH-07(18.70-18.80)

After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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-END REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials

ACTS Serial No.:	2176408
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215760	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-07
IR / WIR / RFI / Number:	-	Start Depth, m:	20.00
ACTS Reference:	NOV2208080712	End Depth, m:	20.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	31-Oct-22	Sampling Method Used:	-
Testing Date:	01-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-07 - S3 (20.00-20.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	924.3
M_{cds}, Mass of Container and Oven Dry Specimen, g	876.4
M_c, Mass of Container, g	495.8
Mass of Moist Specimen, g	428.5
M_w, Mass of Water, g	47.9
M_s, Mass of Oven Dry Specimen, g	380.6
w, Water Content, %	13

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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-END OF REPORT-

ACTS Serial No:	2176409
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215760	Test Pit No. / Borehole No.:	BH-07	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	20.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2208080713	End Depth, m:	20.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	31-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	02-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-07 - S3 (20.00-20.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	100	-	-	-	-
3/4 in.	19.0	0.0	0	0	100	-	-	-	-
No. 4	4.75	0.0	0	0	100	-	-	-	-
No. 10	2.00	3.9	1	1	99	-	-	-	-
No. 20	0.850	3.9	1	2	98	-	-	-	-
No. 40	0.425	32.0	8	10	90	-	-	-	-
No. 60	0.250	98.2	26	36	64	-	-	-	-
No. 140	0.106	177.3	47	83	17	-	-	-	-
No. 200	0.075	22.6	6	89	11	-	-	-	-
Pan	-	42.7	11	100	0	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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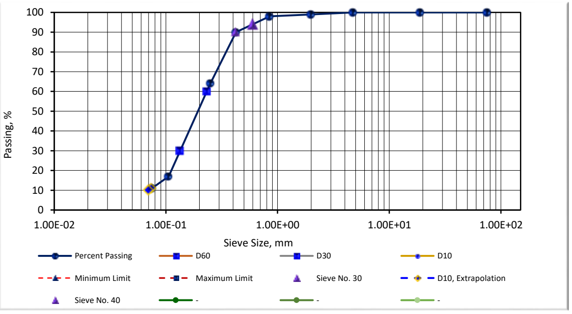

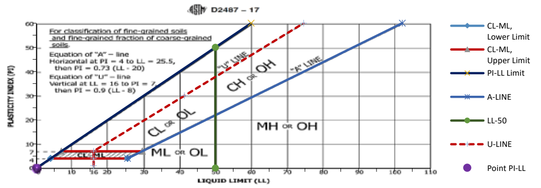

Mass of the Tested Sample,g	380.6	Moisture Content	13%

Description	Test Result	Description	Test Result
Gravel	0%	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	89%	Coarse (2.00 - 4.75 mm)	1%
		Medium (0.425 - 2.00 mm)	9%
		Fine (0.075 - 0.425 mm)	79%
Fines	11%		

Cu	3.283
Cc	1.098
D_{60}, mm	0.232
D_{30}, mm	0.134
D_{10}, mm	0.071
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-2-4(0) Silty or Clayey Gravel and Sand**

Remarks: As per ASTM D2487 − 17 Note 9, It may be necessary to extrapolate the curve to obtain the D10 diameter.

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.	2176410
Reporting Date	10-Nov-22
Page	1 of 1

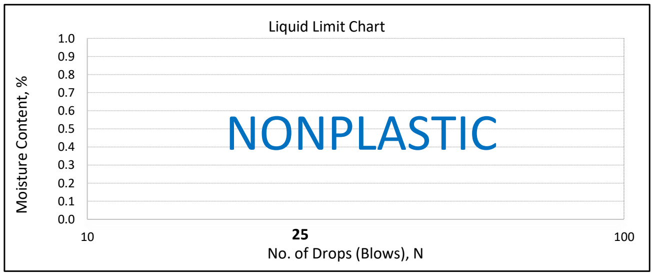
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215760	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425µm, %:	10
ACTS Reference:	NOV2208080714		As received Water Content, %:	13
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	31-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	02-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-07	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	20.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	20.45			-
Sample Location, Description, Ident. and other required info. :	BH-07 - S3 (20.00-20.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.:	2176411
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures: Uniaxial Compressive Strength of Intact Rock Core Specimens

ASTM D7012 − 14, Method C

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

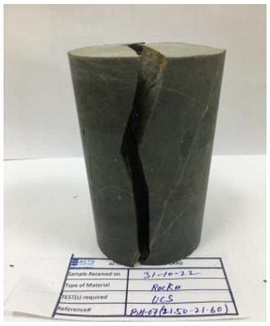
TWO No.	ACTS-2215760	Angle and Depth of Specimen:		-
Customer Reference:	-	Lithologic Description:		-
ACTS Reference:	NOV2208080716	Formation Name:		-
IR / WIR / RFI:	-	Load Direction with Respect to Lithology:		-
Sampling Date:	-	Moisture Condition of specimen at the start of shear:		-
Receiving Date:	31-Oct-22	Temperature at which test was performed if other than room temperature:		-
Testing Date:	5-Nov-22	Sampling Method Used:		-
Sample Type:	Rock	Sampling Plan Used if any:		-
Sample Located / Selected by:	Customer	Test Apparatus Used	Name:	Compression Machine
Sample Collected / Extracted by:	ACTS		Model:	Matest E161
Name of Supplier / Source:	-		Calibration:	Valid till 27-06-2023
Borehole Number:	BH-07	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Start Depth, m:	21.50	Method Used in Moisture Content (Method A / Method B):		Method B(0.1%)
End Depth, m:	21.70	Name or Initial Person(s) who Performed the Test:		Aftab
Sample Location, Identification and other required information:	BH-07 - S4 (21.50-21.70)			-

Specimen Number	1	-	-
Moisture Content, %	0.0	-	-
Mass of Specimen (as received), g	1118.1	-	-
Height (Length) of the Specimen, mm	128.00	-	-
Diameter of the Specimen, mm	64.00	-	-
Diameter of the Largest Mineral Grain, mm	-	-	-
Type of Specimen (Rock / Weak Rock)	Rock Specimen		
Compliance Remark(s), Diameter	-	-	-
L/D, Actual Length Diameter Ratio	2.00	-	-
Required Minimum L/D Ratio	2.00	-	-
Required Maximum L/D Ratio	2.50	-	-
Compliance Remark(s), L/D Ratio	Comply	-	-
Average Cross-sectional Area of Specimen, mm^2	3217.0	-	-
Volume of specimen, cm^3	411.8	-	-
Bulk Density(as received), g/cm³	2.715	-	-
Bulk Dry Density, g/cm³	2.715	-	-
Actual Stress Rate, MPa/s	-	-	-
Time to failure / Duration, minutes	-	-	-
P, Failure Load, kN	250.0	-	-
Physical Appearance of Specimen after Test	Refer to attached Photo	-	-
σ_u, Uniaxial Compressive Strength, MPa	**77.7**	**-**	**-**

Before

Sample Received on
31-10-22
Type of Material
Rock
TEST(s) required
UCS
Reference#
BH-07(21.50-21.60)

After



Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johar Area Manager

LEGAL NOTICED:
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-END OF REPORT-

ACTS Serial No.:	2176412
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

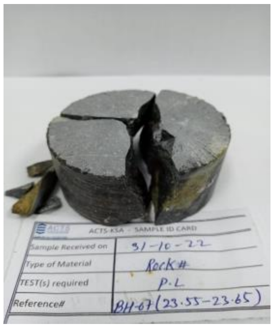
TWO No.:		ACTS-2215760	Name of Source / Supplier:		-
Customer Reference:		-	Bore Hole Number:		BH-07
ACTS Reference:		NOV2208080717	Start Depth, m:		23.55
IR / WIR / RFI / Number:		-	End Depth, m:		23.65
Sampling Date:		-	Storage (Curatorial History) Environment:		-
Receiving Date:		31-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:		06-Nov-22		Model:	Matest A125
Sample Type:		Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:		-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:		-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:		BH-07 - S5 (23.55-23.65)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		64.0
Total Actual Length / Thickness(Axial) of Specimen, mm		34.7
D, Platen Separation, mm		34.7
De^2, mm^2		2830
De, Equivalent Core Diameter, De, mm		53.2
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		28.4
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		10.0
F, Size Correction Factor		1.03
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**10.3**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**198**
(1) Strength Classification		**Extremely High**

PHOTOS

ACTS
Sample Received on
31-10-22
Type of Material
Rock #
TEST(s) required
P.L
Reference#
BH-07 (23.55-23.65)

Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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-END REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials

ACTS Serial No.:	2176413
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215760	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-07
IR / WIR / RFI / Number:	-	Start Depth, m:	24.50
ACTS Reference:	NOV2208080718	End Depth, m:	24.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	31-Oct-22	Sampling Method Used:	-
Testing Date:	01-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-07 - S6 (24.50-24.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	996.5
M_{cds}, Mass of Container and Oven Dry Specimen, g	941.5
M_c, Mass of Container, g	514.5
Mass of Moist Specimen, g	482
M_w, Mass of Water, g	55
M_s, Mass of Oven Dry Specimen, g	427
w, Water Content, %	13

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

LEGAL NOTICED:
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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No:	2176414
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215760	Test Pit No. / Borehole No.:	BH-07	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	24.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2208080719	End Depth, m:	24.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	31-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	02-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-07 - S6 (24.50-24.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	25.2	6	6	**94**	-	-	-	-
No. 4	4.75	23.0	5	11	**89**	-	-	-	-
No. 10	2.00	20.2	5	16	**84**	-	-	-	-
No. 20	0.850	41.7	10	26	**74**	-	-	-	-
No. 40	0.425	52.8	12	38	**62**	-	-	-	-
No. 60	0.250	56.1	13	51	**49**	-	-	-	-
No. 140	0.106	86.1	20	71	**29**	-	-	-	-
No. 200	0.075	19.9	5	76	**24**	-	-	-	-
Pan	-	102.0	24	100	**0**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
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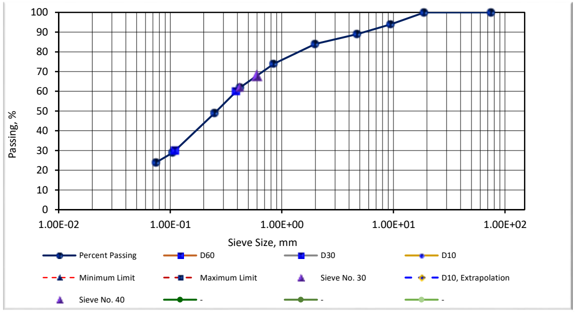
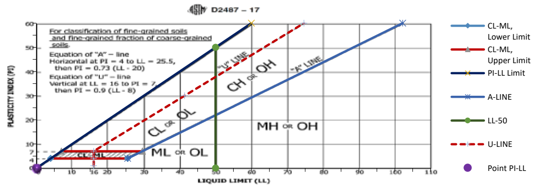


Mass of the Tested Sample,g	427.0	Moisture Content	13%



Description	Test Result	Description	Test Result
Gravel	**11%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	11%
Sand	**65%**	Coarse (2.00 - 4.75 mm)	5%
		Medium (0.425 - 2.00 mm)	22%
		Fine (0.075 - 0.425 mm)	38%
Fines	**24%**		

Cu	-
Cc	-
D_{60}, mm	0.392
D_{30}, mm	0.111
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Silty Sand(SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-2-4(0) Silty or Clayey Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.	2176415
Reporting Date	10-Nov-22
Page	1 of 1

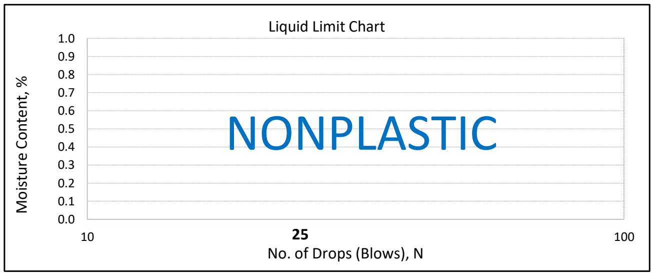
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215760	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	38
ACTS Reference:	NOV2208080720		As received Water Content, %:	13
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	31-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	02-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-07	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	24.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	24.95			-
Sample Location, Description, Ident. and other required info. :	BH-07 - S6 (24.50-24.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Enceder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2176416
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215760	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-07
IR / WIR / RFI / Number:	-	Start Depth, m:	29.00
ACTS Reference:	NOV2208080721	End Depth, m:	29.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	31-Oct-22	Sampling Method Used:	-
Testing Date:	01-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-07 - S7 (29.00-29.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	976.3
M_{cds}, Mass of Container and Oven Dry Specimen, g	933.3
M_c, Mass of Container, g	509.3
Mass of Moist Specimen, g	467
M_w, Mass of Water, g	43
M_s, Mass of Oven Dry Specimen, g	424
w, Water Content, %	10

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No:	2176417
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215760	Test Pit No. / Borehole No.:	BH-07	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	29.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2208080722	End Depth, m:	29.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	31-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	02-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-07 - S7 (29.00-29.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	100	-	-	-	-
3/4 in.	19.0	0.0	0	0	100	-	-	-	-
3/8 in.	9.5	3.9	1	1	99	-	-	-	-
No. 4	4.75	2.3	1	1	99	-	-	-	-
No. 10	2.00	2.7	1	2	98	-	-	-	-
No. 20	0.850	14.0	3	5	95	-	-	-	-
No. 40	0.425	49.6	12	17	83	-	-	-	-
No. 60	0.250	42.5	10	27	73	-	-	-	-
No. 140	0.106	104.4	25	52	48	-	-	-	-
No. 200	0.075	37.0	9	60	40	-	-	-	-
Pan	-	167.6	40	100	0	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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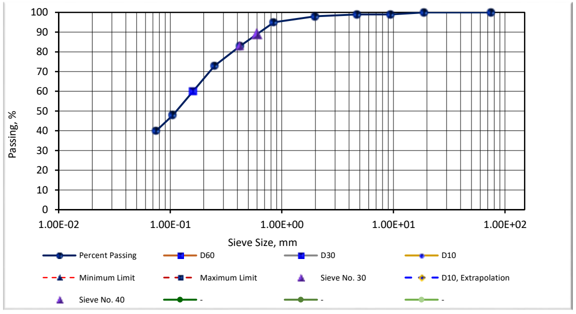

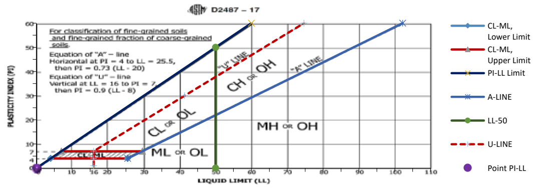

Mass of the Tested Sample,g	424.0	Moisture Content	10%

Description	Test Result	Description	Test Result
Gravel	1%	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	1%
Sand	59%	Coarse (2.00 - 4.75 mm)	1%
		Medium (0.425 - 2.00 mm)	15%
		Fine (0.075 - 0.425 mm)	43%
Fines	40%		

Cu	-
Cc	-
D_{60}, mm	0.160
D_{30}, mm	-
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Silty Sand(SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-4(0) Silty Soils**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.	2176418
Reporting Date	10-Nov-22
Page	1 of 1

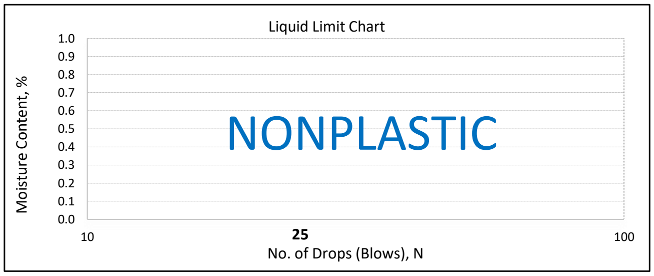
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215760	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	17
ACTS Reference:	NOV2208080723		As received Water Content, %:	10
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	31-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	02-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-07	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	29.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	29.45			-
Sample Location, Description, Ident. and other required info. :	BH-07 - S7 (29.00-29.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Enceder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2176419
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215760	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-07
IR / WIR / RFI / Number:	-	Start Depth, m:	32.00
ACTS Reference:	NOV2208080724	End Depth, m:	32.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	31-Oct-22	Sampling Method Used:	-
Testing Date:	01-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-07 - S8 (32.00-32.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	975.2
M_{cds}, Mass of Container and Oven Dry Specimen, g	894.3
M_c, Mass of Container, g	498.1
Mass of Moist Specimen, g	477.1
M_w, Mass of Water, g	80.9
M_s, Mass of Oven Dry Specimen, g	396.2
w, Water Content, %	20

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

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ACTS Serial No:	2176420
Reporting Date:	10-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215760	Test Pit No. / Borehole No.:	BH-07	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	32.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2208080725	End Depth, m:	32.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	31-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	02-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-07 - S8 (32.00-32.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	30.1	8	8	**92**	-	-	-	-
No. 4	4.75	15.8	4	12	**88**	-	-	-	-
No. 10	2.00	18.2	5	16	**84**	-	-	-	-
No. 20	0.850	22.6	6	22	**78**	-	-	-	-
No. 40	0.425	25.5	6	28	**72**	-	-	-	-
No. 60	0.250	22.7	6	34	**66**	-	-	-	-
No. 140	0.106	37.2	9	43	**57**	-	-	-	-
No. 200	0.075	21.4	5	49	**51**	-	-	-	-
Pan	-	202.7	51	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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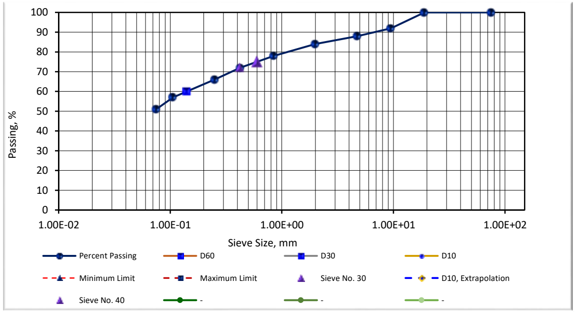

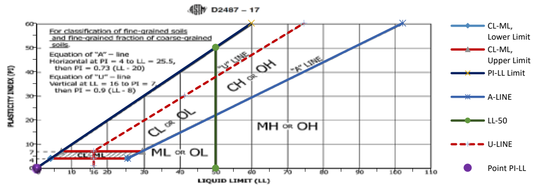

Mass of the Tested Sample,g	396.2	Moisture Content	20%

Description	Test Result	Description	Test Result
Gravel	**12%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	12%
Sand	**37%**	Coarse (2.00 - 4.75 mm)	4%
		Medium (0.425 - 2.00 mm)	12%
		Fine (0.075 - 0.425 mm)	21%
Fines	**51%**		

Cu	-
Cc	-
D_{60}, mm	0.141
D_{30}, mm	-
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Sandy Silt(ML)**
	ASTM D 3282 (AASHTO M145-3)	**A-4(0) Silty Soils**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
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ACTS Serial No.	2176421
Reporting Date	10-Nov-22
Page	1 of 1

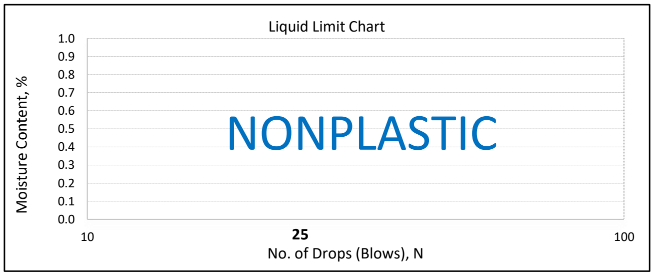
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215760	Description of Sample – Approximate Max Grain Size, mm:	9.5
Customer Reference:	-	Description of Sample – Est. Sample Retained on 425µm, %:	28
ACTS Reference:	NOV2208080726	Description of Sample – As received Water Content, %:	20
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):	-
Sampling Date:	-	Specimen Preparation Procedure Used:	Wet Preparation
Receiving Date:	31-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:	-
Testing Date:	02-Nov-22	Drying Method Used (During Preparation of Specimen):	Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Reference / Specification:	-
Name of Source / Supplier	-	Type of Soil (According to Specification):	-
Test Pit No. / Borehole No:	BH-07	Methodology used to specify how data are recorded on the test data:	-
Start Depth, m:	32.00	Name or Initials of the person(s)who prepared and tested the samples:	Aftab
End Depth, m:	32.45		-
Sample Location, Description, Ident. and other required info. :	BH-07 - S8 (32.00-32.45)		

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

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ACTS Serial No.:	2176422
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

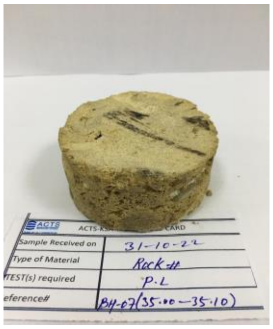
ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

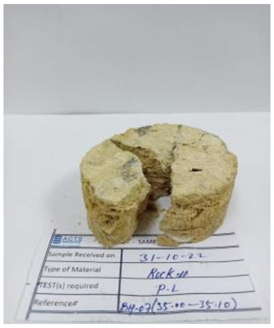
TWO No.:	ACTS-2215760	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-07
ACTS Reference:	NOV2208080727	Start Depth, m:		35.00
IR / WIR / RFI / Number:	-	End Depth, m:		35.10
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	31-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	06-Nov-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) — Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) — Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-07 - S9 (35.00-35.10)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		64.0
Total Actual Length / Thickness(Axial) of Specimen, mm		35.3
D, Platen Separation, mm		35.3
De^2, mm^2		2880
De, Equivalent Core Diameter, De, mm		53.7
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		1.50
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		0.521
F, Size Correction Factor		1.03
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**0.537**
(2) K, Index to Strength Conversion Factor		19.9
σ_c, Uniaxial Compressive Strength, MPa		**10.4**
(1) Strength Classification		**Medium**

PHOTOS



Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS Serial No.:	2176423
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures: Uniaxial Compressive Strength of Intact Rock Core Specimens

ASTM D7012 − 14, Method C

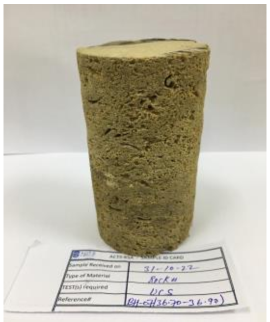
Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.	ACTS-2215760	Angle and Depth of Specimen:	-
Customer Reference:	-	Lithologic Description:	-
ACTS Reference:	NOV2208080729	Formation Name:	-
IR / WIR / RFI:	-	Load Direction with Respect to Lithology:	-
Sampling Date:	-	Moisture Condition of specimen at the start of shear:	-
Receiving Date:	31-Oct-22	Temperature at which test was performed if other than room temperature:	-
Testing Date:	5-Nov-22	Sampling Method Used:	-
Sample Type:	Rock	Sampling Plan Used if any:	-
Sample Located / Selected by:	Customer	Test Apparatus Used	Name: Compression Machine
Sample Collected / Extracted by:	ACTS		Model: Matest E161
Name of Supplier / Source:	-		Calibration: Valid till 27-06-2023
Borehole Number:	BH-07	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Start Depth, m:	36.70	Method Used in Moisture Content (Method A / Method B):	Method B(0.1%)
End Depth, m:	36.90	Name or Initial Person(s) who Performed the Test:	Aftab
Sample Location, Identification and other required information:	BH-07 - S11 (36.70-36.90)		-

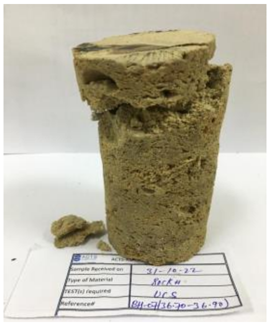
Specimen Number	1	-	-
Moisture Content, %	15.1	-	-
Mass of Specimen (as received), g	686.7	-	-
Height (Length) of the Specimen, mm	128.00	-	-
Diameter of the Specimen, mm	64.00	-	-
Diameter of the Largest Mineral Grain, mm	-	-	-
Type of Specimen (Rock / Weak Rock)	Rock Specimen		
Compliance Remark(s), Diameter	-	-	-
L/D, Actual Length Diameter Ratio	2.00	-	-
Required Minimum L/D Ratio	2.00	-	-
Required Maximum L/D Ratio	2.50	-	-
Compliance Remark(s), L/D Ratio	Comply	-	-
Average Cross-sectional Area of Specimen, mm^2	3217.0	-	-
Volume of specimen, cm^3	411.8	-	-
Bulk Density(as received), g/cm³	1.668	-	-
Bulk Dry Density, g/cm³	1.449	-	-
Actual Stress Rate, MPa/s	-	-	-
Time to failure / Duration, minutes	-	-	-
P, Failure Load, kN	2.9	-	-
Physical Appearance of Specimen after Test	Refer to attached Photo	-	-
σ_u, Uniaxial Compressive Strength, MPa	**0.9**	**-**	**-**

Sketch or Photograph

Before



After



Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Joher Area Manager

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-END OF REPORT-

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ACTS Serial No.	2176424
Reporting Date	10-Nov-22
Page	1 of 1

TEST REPORT

Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils

ASTM D2974 − $20^{\varepsilon 1}$

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215760	Name of Supplier / Source:	-
Customer Reference:	-	Drill Hole/Bore Hole Number:	BH-07
IR / WIR / RFI / Number:	-	Start Depth, m:	36.70
ACTS Reference:	NOV2208080730	End Depth, m:	36.90
Sampling Date:	31-Oct-22	Reference or Specification Used:	-
Receiving Date:	31-Oct-22	Test Method Used:	Method A (General Classification)
Testing Date:	03-Nov-22	Sampling Method Used:	-
Sample Selected / Located by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Name or Initial of Person(s) who performed the test:	Noushad
Sample Type:	Rock		-
Sample Location, Identification and other required information:	BH-07 - S11 (36.70-36.90)	The methodology used to specify how data are recorded on the test data sheet(s)/form(s):	ASTM D6026
		-	-
		-	-

Mc, Mass of Container Plus Lid, g rounding .01	76.99
Mcms, Mass of Container with Lid plus Moist Specimen, g	127.30
Mcds, Mass of Container with lid plus Oven-Dried Specimen, g	127.23
Mw, Mass of Water, g	0.07
Ms, Mass of Oven-Dried Specimen, g	50.24
w, Water Content as a Percentage of Oven-Dried Mass, %	0
Mcas, Mass of Container with Lid plus Ashed Specimen, g	126.76
Ma, Mass of Ash, g	49.77
Furnace Temperature Used for Ash Content Determinations, °C	440

	Test Results	Requirements / Limits	Compliance Remark
Ac, Ash Content, %	99.1	-	-
Om, Organic Material, %	0.9	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

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ACTS Serial No.	2176425
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the pH value

BS 1377-3:2018, Clause 12

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.:	-
TESTED AT :	ACTS Jeddah Main Branch

TWO No:	ACTS-2215760	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-07
ACTS Reference:	NOV2208080731	Start Depth, m:	36.70
IR / WIR / RFI Number:	-	End Depth, m:	36.90
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	31-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	03-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used:	Electrometric Method
Sample Located / Selected by:	Customer	Sampling Method Used:	-
Sample Collected / Extracted by:	ACTS	Sampling Plan Used if any:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Specification / Reference:	-
	-	-	-
Sample Location, Description, Identification and other required info.:	BH-07 - S11 (36.70-36.90)	-	-

	Test Results	Requirement / Limit	Compliance Remark
pH value of the soil suspension	8.3	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem		
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

س.ت. ٤٠٣٠٢٢١١٦٨

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ACTS Serial No.	2176426
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the Chloride Content

BS 1377-3:2018, Clause 9

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215760	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-07
ACTS Reference:	NOV2208080732	Start Depth, m:	36.70
IR / WIR / RFI Number:	-	End Depth, m:	36.90
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	31-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	03-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used (Clause 9.2 or 9.3)	9.2 Determination of Water-Soluble Chloride Content (Volhard's Method)
Sample Located / Selected by:	Customer	Water to Soil Ratio Used for Preparing the Soluble Extract for Clause 9.2 only:	water-soil ratio is 2 : 1
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-07 - S11 (36.70-36.90)	-	-

Trial	1	2
Percentage by Dry Mass of the Original Sample Passing the 2 mm Test Sieve, %	-	-
V_2, Volume of the Silver Nitrate Solution added (AgNO3), mL	65.0	-
V_3, Volume of Standardized Thiocyanate Solution Added, ml	3.9	-
C, Concentration of the Standardized Thiocyanate Solution, mol/L	0.1	-

	Test Results	Requirements / Limit	Compliance Remark
Chloride Ion Content, %	0.43	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	ACTS M. Johor Area Manager

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ACTS Serial No.	2176427
Reporting Date	10-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Gravimetric Method for Analysis of Acid or Water Extract or Groundwater Sulfate
BS 1377-3:2018, Clause 7.6

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215760	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-07
ACTS Reference:	NOV2208080733	Start Depth, m:	36.70
IR / WIR / RFI Number:	-	End Depth, m:	36.90
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	31-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	03-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type :	Rock	Method of Preparation of Test Specimen:	-
Sample Located / Selected by :	Customer	Procedure Used:	Determination of Water-Soluble Sulfate in Soil (WS)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-07 - S11 (36.70-36.90)	-	-

Trial	1	2
Percentage Finer than 2 mm in Original Sample, %	-	-
Mass of Each Test Specimen Used, g	50.000	-
Mass of Ignited Precipitate, g	0.085	-
pH of Water Extract, pH	7.9	-

Description	Test Result	Requirement / Limit	Compliance Remark
SO_3, Water-Soluble Sulfate Content,mg/L	**580**	-	-
SO_3, Water-Soluble Sulfate Content,%	**0.12**	-	-
SO_4, Water-Soluble Sulfate Content, mg/L	**700**	-	-
SO_4, Water-Soluble Sulfate Content,%	**0.14**	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS

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ACTS Serial No.:	2176428
Reporting Date:	10-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

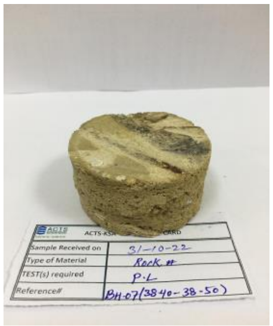
ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

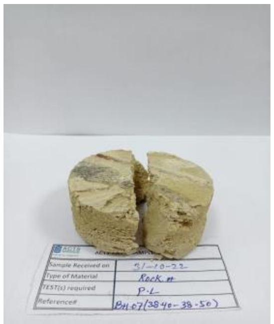
TWO No.:	ACTS-2215760	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-07
ACTS Reference:	NOV2208080734	Start Depth, m:		38.40
IR / WIR / RFI / Number:	-	End Depth, m:		38.50
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	31-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	06-Nov-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) — Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) — Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-07 - S14 (38.40-38.50)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		64.0
Total Actual Length / Thickness(Axial) of Specimen, mm		36.0
D, Platen Separation, mm		36.0
De^2, mm^2		2930
De, Equivalent Core Diameter, De, mm		54.1
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		0.900
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		0.307
F, Size Correction Factor		1.04
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**0.319**
(2) K, Index to Strength Conversion Factor		20.0
σ_c, Uniaxial Compressive Strength, MPa		**6.14**
(1) Strength Classification		**Medium**

PHOTOS



Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.:	2173529
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215346	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-05
IR / WIR / RFI / Number:	-	Start Depth, m:	2.00
ACTS Reference:	NOV2201010123	End Depth, m:	2.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	30-Oct-22	Sampling Method Used:	-
Testing Date:	31-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-05 - S4 (2.00-2.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	884.8
M_{cds}, Mass of Container and Oven Dry Specimen, g	829.5
M_c, Mass of Container, g	305.7
Mass of Moist Specimen, g	579.1
M_w, Mass of Water, g	55.3
M_s, Mass of Oven Dry Specimen, g	523.8
w, Water Content, %	11

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No:	2173530
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215346	Test Pit No. / Borehole No.:	BH-05	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	2.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2201010124	End Depth, m:	2.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	30-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	01-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-05 - S4 (2.00-2.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	0.0	0	0	**100**	-	-	-	-
No. 10	2.00	26.1	5	5	**95**	-	-	-	-
No. 20	0.850	136.4	26	31	**69**	-	-	-	-
No. 40	0.425	134.8	26	57	**43**	-	-	-	-
No. 60	0.250	96.7	18	75	**25**	-	-	-	-
No. 140	0.106	92.1	18	93	**7**	-	-	-	-
No. 200	0.075	11.3	2	95	**5**	-	-	-	-
Pan	-	26.4	5	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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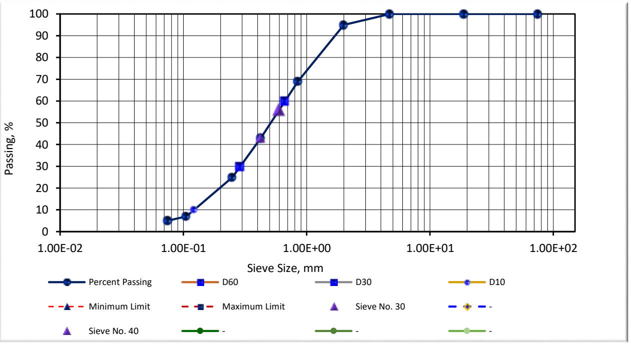
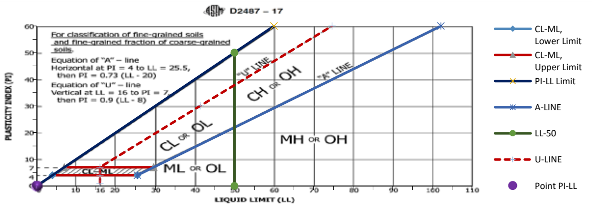
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	523.8	Moisture Content	11%





Description	Test Result	Description	Test Result
Gravel	**0%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	**95%**	Coarse (2.00 - 4.75 mm)	5%
		Medium (0.425 - 2.00 mm)	52%
		Fine (0.075 - 0.425 mm)	38%
Fines	**5%**		

Cu	5.468
Cc	1.026
D_{60}, mm	0.669
D_{30}, mm	0.290
D_{10}, mm	0.122
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

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Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173531
Reporting Date	02-Nov-22
Page	1 of 1

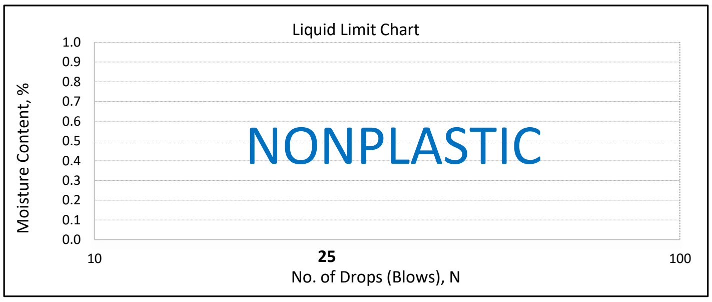
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215346	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425µm, %:	57
ACTS Reference:	NOV2201010125		As received Water Content, %:	11
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	30-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	01-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-05	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	2.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	2.45			-
Sample Location, Description, Ident. and other required info. :	BH-05 - S4 (2.00-2.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS

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-END OF REPORT-

ACTS Serial No.:	2173532
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

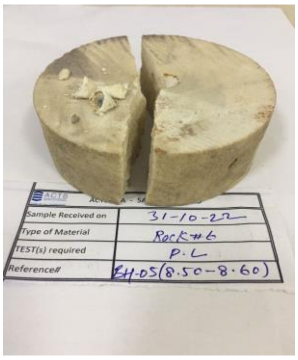
TWO No.:	ACTS-2215346	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-05
ACTS Reference:	NOV2201010130	Start Depth, m:		8.50
IR / WIR / RFI / Number:	-	End Depth, m:		8.60
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	30-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	01-Nov-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) — Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) — Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-05 - S6 (8.50-8.60)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		83.0
Total Actual Length / Thickness(Axial) of Specimen, mm		33.2
D, Platen Separation, mm		33.2
De^2, mm^2		3510
De, Equivalent Core Diameter, De, mm		59.2
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		10.6
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		3.02
F, Size Correction Factor		1.08
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**3.26**
(2) K, Index to Strength Conversion Factor		19.5
σ_c, Uniaxial Compressive Strength, MPa		**58.9**
(1) Strength Classification		**Very High**

PHOTOS

Sample Received on
31-10-22
Type of Material
Rock#6
TEST(s) required
P.L
Reference#
BH-05(8.50-8.60)

Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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-END REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials

ACTS Serial No.:	2173533
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215346	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-05
IR / WIR / RFI / Number:	-	Start Depth, m:	11.00
ACTS Reference:	NOV2201010133	End Depth, m:	11.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	30-Oct-22	Sampling Method Used:	-
Testing Date:	01-Nov-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-05 - S7 (11.00-11.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	629.8
M_{cds}, Mass of Container and Oven Dry Specimen, g	545.2
M_c, Mass of Container, g	191.2
Mass of Moist Specimen, g	438.6
M_w, Mass of Water, g	84.6
M_s, Mass of Oven Dry Specimen, g	354
w, Water Content, %	24

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials

ACTS Serial No:	2173534
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215346	Test Pit No. / Borehole No.:	BH-05	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	11.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2201010134	End Depth, m:	11.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	30-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	01-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-05 - S7 (11.00-11.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	0.0	0	0	**100**	-	-	-	-
No. 10	2.00	0.0	0	0	**100**	-	-	-	-
No. 20	0.850	2.4	1	1	**99**	-	-	-	-
No. 40	0.425	29.4	8	9	**91**	-	-	-	-
No. 60	0.250	95.5	27	36	**64**	-	-	-	-
No. 140	0.106	122.4	35	71	**29**	-	-	-	-
No. 200	0.075	21.7	6	77	**23**	-	-	-	-
Pan	-	82.6	23	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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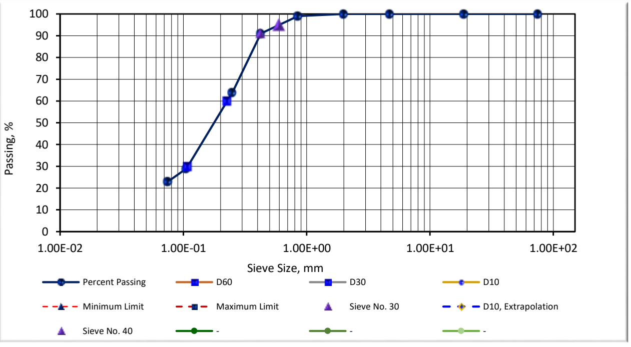

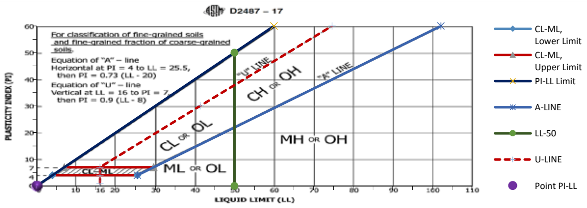

Mass of the Tested Sample,g	354.0	Moisture Content	24%

Description	Test Result	Description	Test Result
Gravel	**0%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	**77%**	Coarse (2.00 - 4.75 mm)	0%
		Medium (0.425 - 2.00 mm)	9%
		Fine (0.075 - 0.425 mm)	68%
Fines	**23%**		

Cu	-
Cc	-
D_{60}, mm	0.227
D_{30}, mm	0.109
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Silty Sand(SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-2-4(0) Silty or Clayey Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.	2173535
Reporting Date	02-Nov-22
Page	1 of 1

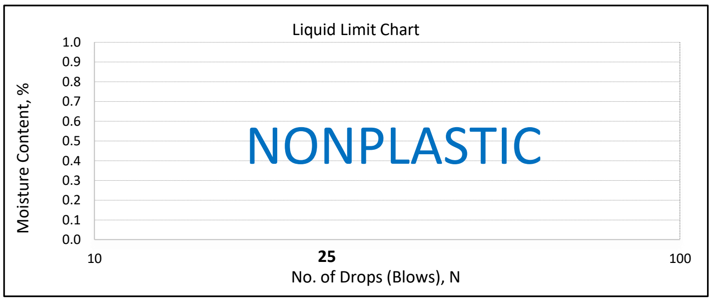
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215346	Description of Sample	Approximate Max Grain Size, mm:	0.85
Customer Reference:	-		Est. Sample Retained on 425μm, %:	9
ACTS Reference:	NOV2201010135		As received Water Content, %:	24
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	30-Oct-22	Method of Removing Particles Larger than the 425-μm (No. 40) Sieve:		-
Testing Date:	01-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-05	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	11.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	11.45			-
Sample Location, Description, Ident. and other required info. :	BH-05 - S7 (11.00-11.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2173536
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215346	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-05
IR / WIR / RFI / Number:	-	Start Depth, m:	18.50
ACTS Reference:	NOV2201010136	End Depth, m:	18.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	30-Oct-22	Sampling Method Used:	-
Testing Date:	31-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-05 - S9 (18.50-18.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	1167.7
M_{cds}, Mass of Container and Oven Dry Specimen, g	1039.4
M_c, Mass of Container, g	424.3
Mass of Moist Specimen, g	743.4
M_w, Mass of Water, g	128.3
M_s, Mass of Oven Dry Specimen, g	615.1
w, Water Content, %	21

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No:	2173537
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215346	Test Pit No. / Borehole No.:	BH-05	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	18.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	NOV2201010137	End Depth, m:	18.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	30-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	01-Nov-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-05 - S9 (18.50-18.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	0.0	0	0	**100**	-	-	-	-
No. 10	2.00	3.1	1	1	**99**	-	-	-	-
No. 20	0.850	3.0	0	1	**99**	-	-	-	-
No. 40	0.425	4.0	1	2	**98**	-	-	-	-
No. 60	0.250	4.7	1	2	**98**	-	-	-	-
No. 140	0.106	13.2	2	5	**95**	-	-	-	-
No. 200	0.075	10.2	2	6	**94**	-	-	-	-
Pan	-	576.9	94	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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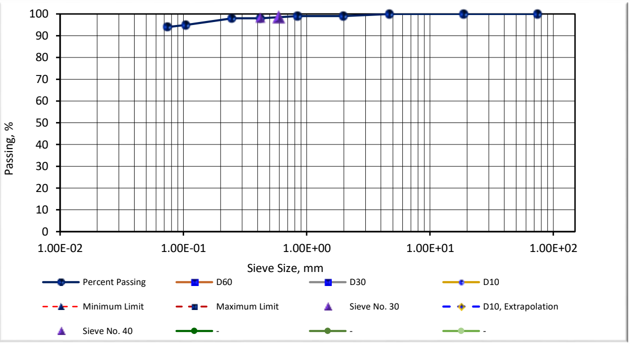
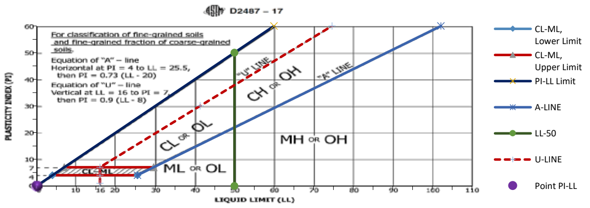


Mass of the Tested Sample,g	615.1	Moisture Content	21%



Description	Test Result	Description	Test Result
Gravel	**0%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	**6%**	Coarse (2.00 - 4.75 mm)	1%
		Medium (0.425 - 2.00 mm)	1%
		Fine (0.075 - 0.425 mm)	4%
Fines	**94%**		

Cu	-
Cc	-
D_{60}, mm	-
D_{30}, mm	-
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Silt(ML)**
	ASTM D 3282 (AASHTO M145-3)	**A-4(0) Silty Soils**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials

ACTS Serial No.	2173538
Reporting Date	02-Nov-22
Page	1 of 1

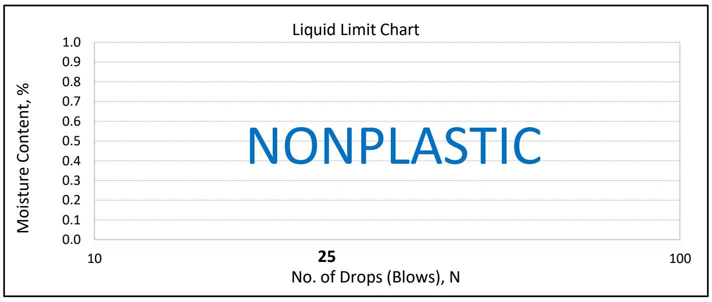
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215346	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425µm, %:	2
ACTS Reference:	NOV2201010138		As received Water Content, %:	21
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	30-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	01-Nov-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-05	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	18.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	18.95			-
Sample Location, Description, Ident. and other required info. :	BH-05 - S9 (18.50-18.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	NP	-	-
PL	NP	-	-
PI	NP	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173634
Reporting Date	02-Nov-22
Page	1 of 1

TEST REPORT

Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils

ASTM D2974 − 20$^{\varepsilon 1}$

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215346	Name of Supplier / Source:	-
Customer Reference:	-	Drill Hole/Bore Hole Number:	BH-05
IR / WIR / RFI / Number:	-	Start Depth, m:	2.00
ACTS Reference:	NOV2201010126	End Depth, m:	2.45
Sampling Date:	30-Oct-22	Reference or Specification Used:	-
Receiving Date:	30-Oct-22	Test Method Used:	Method A (General Classification)
Testing Date:	02-Nov-22	Sampling Method Used:	-
Sample Selected / Located by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Name or Initial of Person(s) who performed the test:	Noushad -
Sample Type:	Soil		
Sample Location, Identification and other required information:	BH-05 - S4 (2.00-2.45)	The methodology used to specify how data are recorded on the test data sheet(s)/form(s):	ASTM D6026
		-	-
		-	-

Mc, Mass of Container Plus Lid, g rounding .01	76.70
Mcms, Mass of Container with Lid plus Moist Specimen, g	102.21
Mcds, Mass of Container with lid plus Oven-Dried Specimen, g	102.11
Mw, Mass of Water, g	0.10
Ms, Mass of Oven-Dried Specimen, g	25.41
w, Water Content as a Percentage of Oven-Dried Mass, %	0
Mcas, Mass of Container with Lid plus Ashed Specimen, g	101.86
Ma, Mass of Ash, g	25.16
Furnace Temperature Used for Ash Content Determinations, °C	440

	Test Results	Requirements / Limits	Compliance Remark
Ac, Ash Content, %	99	-	-
Om, Organic Material, %	1	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173635
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the pH value

BS 1377-3:2018, Clause 12

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215346	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-05
ACTS Reference:	NOV2201010127	Start Depth, m:	2.00
IR / WIR / RFI Number:	-	End Depth, m:	2.45
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	30-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Soil	Test Method Used:	Electrometric Method
Sample Located / Selected by:	Customer	Sampling Method Used:	-
Sample Collected / Extracted by:	ACTS	Sampling Plan Used if any:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Specification / Reference:	-
	-	-	-
Sample Location, Description, Identification and other required info.:	BH-05 - S4 (2.00-2.45)	-	-

	Test Results	Requirement / Limit	Compliance Remark
pH value of the soil suspension	8.0	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173636
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the Chloride Content

BS 1377-3:2018, Clause 9

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.:	-
TESTED AT :	ACTS Jeddah Main Branch

TWO No:	ACTS-2215346	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-05
ACTS Reference:	NOV2201010128	Start Depth, m:	2.00
IR / WIR / RFI Number:	-	End Depth, m:	2.45
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	30-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Soil	Test Method Used (Clause 9.2 or 9.3)	9.2 Determination of Water-Soluble Chloride Content (Volhard's Method)
Sample Located / Selected by:	Customer	Water to Soil Ratio Used for Preparing the Soluble Extract for Clause 9.2 only:	water-soil ratio is 2 : 1
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-05 - S4 (2.00-2.45)	-	-

Trial	1	2
Percentage by Dry Mass of the Original Sample Passing the 2 mm Test Sieve, %	95	-
V_2, Volume of the Silver Nitrate Solution added (AgNO3), mL	60.0	-
V_3, Volume of Standardized Thiocyanate Solution Added, ml	2.9	-
C, Concentration of the Standardized Thiocyanate Solution, mol/L	0.1	-

	Test Results	Requirements / Limit	Compliance Remark
Chloride Ion Content, %	0.40	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173637
Reporting Date	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Gravimetric Method for Analysis of Acid or Water Extract or Groundwater Sulfate
BS 1377-3:2018, Clause 7.6

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215346	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-05
ACTS Reference:	NOV2201010129	Start Depth, m:	2.00
IR / WIR / RFI Number:	-	End Depth, m:	2.45
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	30-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type :	Soil	Method of Preparation of Test Specimen:	-
Sample Located / Selected by :	Customer	Procedure Used:	Determination of Water-Soluble Sulfate in Soil (WS)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-05 - S4 (2.00-2.45)	-	-

Trial	1	2
Percentage Finer than 2 mm in Original Sample, %	95	-
Mass of Each Test Specimen Used, g	50.000	-
Mass of Ignited Precipitate, g	0.052	-
pH of Water Extract, pH	7.7	-

Description	Test Result	Requirement / Limit	Compliance Remark
SO_3, Water-Soluble Sulfate Content,mg/L	**360**	-	-
SO_3, Water-Soluble Sulfate Content,%	**0.07**	-	-
SO_4, Water-Soluble Sulfate Content, mg/L	**430**	-	-
SO_4, Water-Soluble Sulfate Content,%	**0.09**	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	ACTS M. Johor Area Manager

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ACTS Serial No.:	2173507
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215343	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-04
IR / WIR / RFI / Number:	-	Start Depth, m:	2.00
ACTS Reference:	OCT2231310713	End Depth, m:	2.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	18-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-04 - S2 (2.00-2.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	843.6
M_{cds}, Mass of Container and Oven Dry Specimen, g	813.4
M_c, Mass of Container, g	493.2
Mass of Moist Specimen, g	350.4
M_w, Mass of Water, g	30.2
M_s, Mass of Oven Dry Specimen, g	320.2
w, Water Content, %	9

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
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ACTS Serial No:	2173508
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215343	Test Pit No. / Borehole No.:	BH-04	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	2.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310714	End Depth, m:	2.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	18-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-04 - S2 (2.00-2.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	0.0	0	0	**100**	-	-	-	-
No. 10	2.00	8.1	3	3	**97**	-	-	-	-
No. 20	0.850	72.9	23	25	**75**	-	-	-	-
No. 40	0.425	84.1	26	52	**48**	-	-	-	-
No. 60	0.250	65.8	21	72	**28**	-	-	-	-
No. 140	0.106	60.1	19	91	**9**	-	-	-	-
No. 200	0.075	7.7	2	93	**7**	-	-	-	-
Pan	-	21.5	7	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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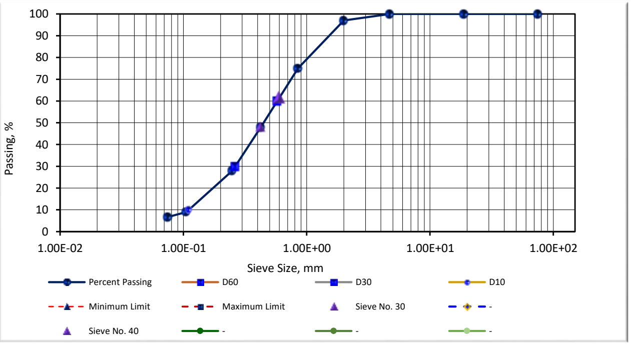

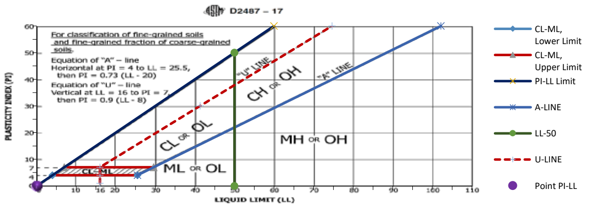

Mass of the Tested Sample,g	320.2	Moisture Content	9%

Description	Test Result	Description	Test Result
Gravel	**0%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	**93%**	Coarse (2.00 - 4.75 mm)	3%
		Medium (0.425 - 2.00 mm)	49%
		Fine (0.075 - 0.425 mm)	41%
Fines	**7%**		

Cu	5.215
Cc	1.084
D_{60}, mm	0.578
D_{30}, mm	0.264
D_{10}, mm	0.111
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
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ACTS Serial No.	2173509
Reporting Date	02-Nov-22
Page	1 of 1

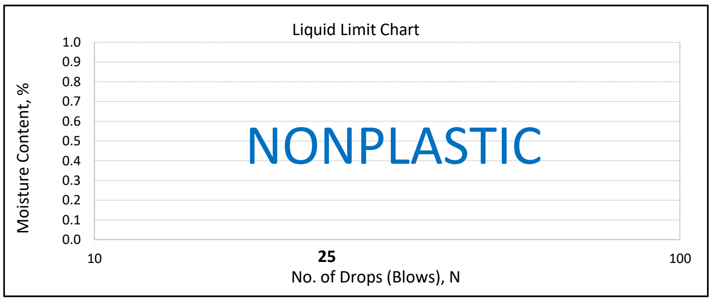
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215343	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425μm, %:	52
ACTS Reference:	OCT2231310715		As received Water Content, %:	9
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	18-Oct-22	Method of Removing Particles Larger than the 425-μm (No. 40) Sieve:		-
Testing Date:	29-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-04	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	2.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	2.45			-
Sample Location, Description, Ident. and other required info. :	BH-04 - S2 (2.00-2.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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ACTS Serial No.:	2173510
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

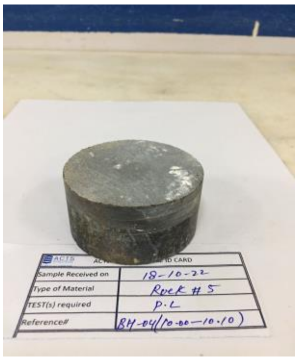
ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

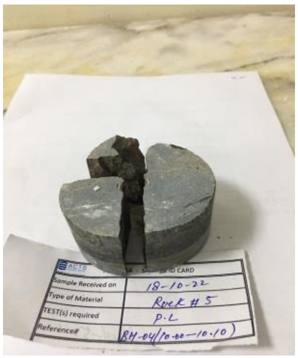
TWO No.:	ACTS-2215343	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-04
ACTS Reference:	OCT2231310716	Start Depth, m:		10.00
IR / WIR / RFI / Number:	-	End Depth, m:		10.10
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	18-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	29-Oct-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) — Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) — Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-04 - S5 (10.00-10.10)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		35.4
D, Platen Separation, mm		35.4
De^2, mm^2		2860
De, Equivalent Core Diameter, De, mm		53.5
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		32.0
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		11.2
F, Size Correction Factor		1.03
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**11.5**
(2) K, Index to Strength Conversion Factor		19.9
σ_c, Uniaxial Compressive Strength, MPa		**223**
(1) Strength Classification		**Extremely High**

PHOTOS


ACTS
Sample Received on 18-10-22
Type of Material Rock # 5
TEST(s) required P.L
Reference# BH-04/10.00—10.10

Before


ACTS
Sample Received on 18-10-22
Type of Material Rock # 5
TEST(s) required P.L
Reference# BH-04/10.00—10.10

After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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-END REPORT-

ACTS Serial No.:	2173511
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

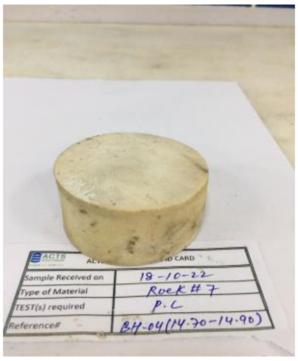
ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

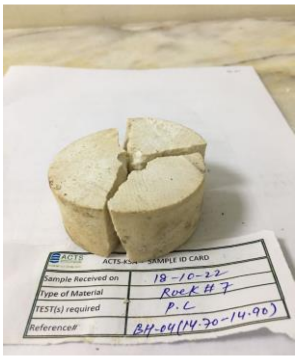
TWO No.:	ACTS-2215343	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-04
ACTS Reference:	OCT2231310717	Start Depth, m:		14.70
IR / WIR / RFI / Number:	-	End Depth, m:		14.90
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	18-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	29-Oct-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) – Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) – Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-04 - S7 (14.70-14.90)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		33.4
D, Platen Separation, mm		33.4
De^2, mm^2		2700
De, Equivalent Core Diameter, De, mm		52.0
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		8.70
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		3.22
F, Size Correction Factor		1.02
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**3.28**
(2) K, Index to Strength Conversion Factor		19.6
σ_c, Uniaxial Compressive Strength, MPa		**63.1**
(1) Strength Classification		**Very High**

PHOTOS



Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

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ACTS Serial No.:	2173512
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures: Uniaxial Compressive Strength of Intact Rock Core Specimens

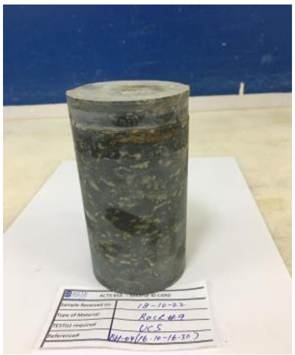
ASTM D7012 − 14, Method C

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

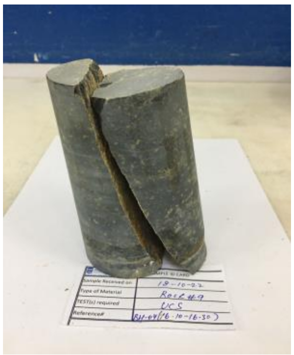
TWO No.	ACTS-2215343	Angle and Depth of Specimen:	-
Customer Reference:	-	Lithologic Description:	-
ACTS Reference:	OCT2231310718	Formation Name:	-
IR / WIR / RFI:	-	Load Direction with Respect to Lithology:	-
Sampling Date:	-	Moisture Condition of specimen at the start of shear:	-
Receiving Date:	18-Oct-22	Temperature at which test was performed if other than room temperature:	-
Testing Date:	30-Oct-22	Sampling Method Used:	-
Sample Type:	Rock	Sampling Plan Used if any:	-
Sample Located / Selected by:	Customer	Test Apparatus Used	Name: Compression Machine
Sample Collected / Extracted by:	ACTS		Model: Matest E161
Name of Supplier / Source:	-		Calibration: Valid till 27-06-2023
Borehole Number:	BH-04	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Start Depth, m:	16.10	Method Used in Moisture Content (Method A / Method B):	Method B(0.1%)
End Depth, m:	16.30	Name or Initial Person(s) who Performed the Test:	Aftab
Sample Location, Identification and other required information:	BH-04 - S9 (16.10-16.30)		-

Specimen Number	1	-	-
Moisture Content, %	0.1	-	-
Mass of Specimen (as received), g	1100.0	-	-
Height (Length) of the Specimen, mm	127.00	-	-
Diameter of the Specimen, mm	63.50	-	-
Diameter of the Largest Mineral Grain, mm	-	-	-
Type of Specimen (Rock / Weak Rock)	Rock Specimen		
Compliance Remark(s), Diameter	-	-	-
L/D, Actual Length Diameter Ratio	2.00	-	-
Required Minimum L/D Ratio	2.00	-	-
Required Maximum L/D Ratio	2.50	-	-
Compliance Remark(s), L/D Ratio	Comply	-	-
Average Cross-sectional Area of Specimen, mm^2	3166.9	-	-
Volume of specimen, cm^3	402.2	-	-
Bulk Density(as received), g/cm³	2.735	-	-
Bulk Dry Density, g/cm³	2.732	-	-
Actual Stress Rate, MPa/s	-	-	-
Time to failure / Duration, minutes	-	-	-
P, Failure Load, kN	115.9	-	-
Physical Appearance of Specimen after Test	Refer to attached Photo	-	-
σu, Uniaxial Compressive Strength, MPa	**36.6**	**-**	**-**

Before



After



Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Joher Area Manager

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ACTS Serial No.	2173630
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the pH value

BS 1377-3:2018, Clause 12

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215343	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-04
ACTS Reference:	OCT2231310720	Start Depth, m:	16.10
IR / WIR / RFI Number:	-	End Depth, m:	16.30
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	18-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used:	Electrometric Method
Sample Located / Selected by:	Customer	Sampling Method Used:	-
Sample Collected / Extracted by:	ACTS	Sampling Plan Used if any:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Specification / Reference:	-
	-	-	-
Sample Location, Description, Identification and other required info.:	BH-04 - S9 (16.10-16.30)	-	-

	Test Results	Requirement / Limit	Compliance Remark
pH value of the soil suspension	8.5	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173631
Reporting Date	02-Nov-22
Page	1 of 1

TEST REPORT

Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils

ASTM D2974 − 20$^{\varepsilon1}$

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215343	Name of Supplier / Source:	-
Customer Reference:	-	Drill Hole/Bore Hole Number:	BH-04
IR / WIR / RFI / Number:	-	Start Depth, m:	16.10
ACTS Reference:	OCT2231310721	End Depth, m:	16.30
Sampling Date:	18-Oct-22	Reference or Specification Used:	-
Receiving Date:	18-Oct-22	Test Method Used:	Method A (General Classification)
Testing Date:	02-Nov-22	Sampling Method Used:	-
Sample Selected / Located by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Name or Initial of Person(s) who performed the test:	- -
Sample Type:	Rock		
Sample Location, Identification and other required information:	BH-04 - S9 (16.10-16.30)	The methodology used to specify how data are recorded on the test data sheet(s)/form(s):	ASTM D6026
		-	-
		-	-

Mc, Mass of Container Plus Lid, g rounding .01	80.73
Mcms, Mass of Container with Lid plus Moist Specimen, g	105.93
Mcds, Mass of Container with lid plus Oven-Dried Specimen, g	105.88
Mw, Mass of Water, g	0.05
Ms, Mass of Oven-Dried Specimen, g	25.15
w, Water Content as a Percentage of Oven-Dried Mass, %	0
Mcas, Mass of Container with Lid plus Ashed Specimen, g	105.78
Ma, Mass of Ash, g	25.05
Furnace Temperature Used for Ash Content Determinations, °C	440

	Test Results	Requirements / Limits	Compliance Remark
Ac, Ash Content, %	99.6	-	-
Om, Organic Material, %	0.4	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

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ACTS Serial No.	2173632
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Determination of the Chloride Content

BS 1377-3:2018, Clause 9

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215343	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-04
ACTS Reference:	OCT2231310721	Start Depth, m:	16.10
IR / WIR / RFI Number:	-	End Depth, m:	16.30
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	18-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used (Clause 9.2 or 9.3)	9.2 Determination of Water-Soluble Chloride Content (Volhard's Method)
Sample Located / Selected by:	Customer	Water to Soil Ratio Used for Preparing the Soluble Extract for Clause 9.2 only:	water-soil ratio is 2 : 1
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-04 - S9 (16.10-16.30)	-	-

Trial	1	2
Percentage by Dry Mass of the Original Sample Passing the 2 mm Test Sieve, %	-	-
V_2, Volume of the Silver Nitrate Solution added (AgNO3), mL	5.0	-
V_3, Volume of Standardized Thiocyanate Solution Added, ml	4.0	-
C, Concentration of the Standardized Thiocyanate Solution, mol/L	0.1	-

	Test Results	Requirements / Limit	Compliance Remark
Chloride Ion Content, %	0.01	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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-END OF REPORT-

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ACTS Serial No.	2173633
Reporting Date	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Gravimetric Method for Analysis of Acid or Water Extract or Groundwater Sulfate
BS 1377-3:2018, Clause 7.6

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.:	-
TESTED AT :	ACTS Jeddah Main Branch

TWO No:	ACTS-2215343	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-04
ACTS Reference:	OCT2231310722	Start Depth, m:	16.10
IR / WIR / RFI Number:	-	End Depth, m:	16.30
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	18-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type :	Rock	Method of Preparation of Test Specimen:	-
Sample Located / Selected by :	Customer	Procedure Used:	Determination of Water-Soluble Sulfate in Soil (WS)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-04 - S9 (16.10-16.30)	-	-

Trial	1	2
Percentage Finer than 2 mm in Original Sample, %	-	-
Mass of Each Test Specimen Used, g	50.000	-
Mass of Ignited Precipitate, g	0.004	-
pH of Water Extract, pH	8.1	-

Description	Test Result	Requirement / Limit	Compliance Remark
SO_3, Water-Soluble Sulfate Content,mg/L	**30**	-	-
SO_3, Water-Soluble Sulfate Content,%	**0.01**	-	-
SO_4, Water-Soluble Sulfate Content, mg/L	**30**	-	-
SO_4, Water-Soluble Sulfate Content,%	**0.01**	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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ACTS
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ACTS Serial No.:	2173513
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures: Uniaxial Compressive Strength of Intact Rock Core Specimens

ASTM D7012 − 14, Method C

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.	ACTS-2215343	Angle and Depth of Specimen:		-
Customer Reference:	-	Lithologic Description:		-
ACTS Reference:	OCT2231310723	Formation Name:		-
IR / WIR / RFI:	-	Load Direction with Respect to Lithology:		-
Sampling Date:	-	Moisture Condition of specimen at the start of shear:		-
Receiving Date:	18-Oct-22	Temperature at which test was performed if other than room temperature:		-
Testing Date:	30-Oct-22	Sampling Method Used:		-
Sample Type:	Rock	Sampling Plan Used if any:		-
Sample Located / Selected by:	Customer	Test Apparatus Used	Name:	Compression Machine
Sample Collected / Extracted by:	ACTS		Model:	Matest E161
Name of Supplier / Source:	-		Calibration:	Valid till 27-06-2023
Borehole Number:	BH-04	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Start Depth, m:	20.15	Method Used in Moisture Content (Method A / Method B):		Method B(0.1%)
End Depth, m:	20.30	Name or Initial Person(s) who Performed the Test:		Aftab
Sample Location, Identification and other required information:	BH-04 - S11 (20.15-20.30)			-

Specimen Number	1	-	-
Moisture Content, %	0.2	-	-
Mass of Specimen (as received), g	1056.0	-	-
Height (Length) of the Specimen, mm	127.00	-	-
Diameter of the Specimen, mm	63.50	-	-
Diameter of the Largest Mineral Grain, mm	-	-	-
Type of Specimen (Rock / Weak Rock)	Rock Specimen		
Compliance Remark(s), Diameter	-	-	-
L/D, Actual Length Diameter Ratio	2.00	-	-
Required Minimum L/D Ratio	2.00	-	-
Required Maximum L/D Ratio	2.50	-	-
Compliance Remark(s), L/D Ratio	Comply	-	-
Average Cross-sectional Area of Specimen, mm^2	3166.9	-	-
Volume of specimen, cm^3	402.2	-	-
Bulk Density(as received), g/cm^3	2.626	-	-
Bulk Dry Density, g/cm^3	2.620	-	-
Actual Stress Rate, MPa/s	-	-	-
Time to failure / Duration, minutes	-	-	-
P, Failure Load, kN	336.4	-	-
Physical Appearance of Specimen after Test	Refer to attached Photo	-	-
σ_u, Uniaxial Compressive Strength, MPa	**106.0**	**-**	**-**

Before

Sample Received on 19-10-22
Type of Material Rock #11
TEST(s) required UCS
Reference# BH-04(20.15-20.30)

After

Sample Received on 19-10-22
Type of Material Rock #11
TEST(s) required UCS
Reference# BH-04(20.15-20.30)

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johar Area Manager

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ACTS
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ACTS Serial No.:	2173514
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215343	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-04
IR / WIR / RFI / Number:	-	Start Depth, m:	24.95
ACTS Reference:	OCT2231310724	End Depth, m:	25.50
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	18-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-04 - S13 (24.95-25.50)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	735.8
M_{cds}, Mass of Container and Oven Dry Specimen, g	720.8
M_c, Mass of Container, g	430.2
Mass of Moist Specimen, g	305.6
M_w, Mass of Water, g	15
M_s, Mass of Oven Dry Specimen, g	290.6
w, Water Content, %	5

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS

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ACTS Serial No:	2173515
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

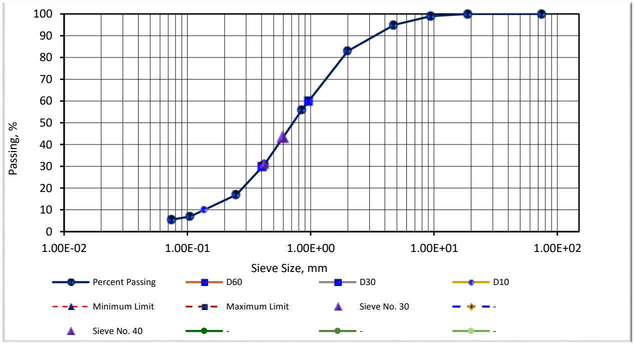
ASTM D2487-17 and ASTM D3282-15

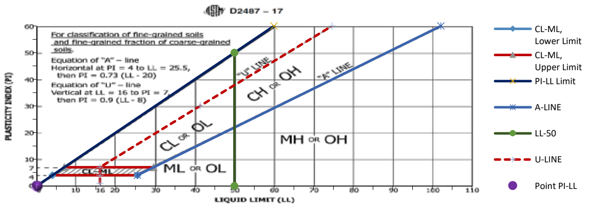
PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215343	Test Pit No. / Borehole No.:	BH-04	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	24.95		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310725	End Depth, m:	25.50		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	18-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-04 - S13 (24.95-25.50)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	3.8	1	1	**99**	-	-	-	-
No. 4	4.75	12.1	4	5	**95**	-	-	-	-
No. 10	2.00	33.6	12	17	**83**	-	-	-	-
No. 20	0.850	79.4	27	44	**56**	-	-	-	-
No. 40	0.425	72.1	25	69	**31**	-	-	-	-
No. 60	0.250	39.1	13	83	**17**	-	-	-	-
No. 140	0.106	31.4	11	93	**7**	-	-	-	-
No. 200	0.075	3.1	1	94	**6**	-	-	-	-
Pan	-	16.0	6	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	290.6	Moisture Content	5%





Description	Test Result	Description	Test Result
Gravel	**5%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	5%
Sand	**89%**	Coarse (2.00 - 4.75 mm)	12%
		Medium (0.425 - 2.00 mm)	52%
		Fine (0.075 - 0.425 mm)	25%
Fines	**6%**		

Cu	7.037
Cc	1.266
D_{60}, mm	0.965
D_{30}, mm	0.409
D_{10}, mm	0.137
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Well Graded Sand with Silt(SW-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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ACTS Serial No.	2173516
Reporting Date	02-Nov-22
Page	1 of 1

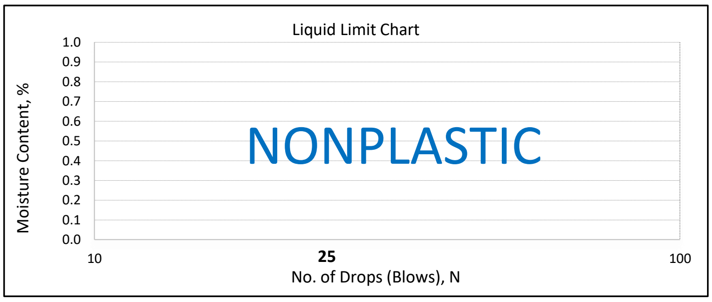
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215343	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	69
ACTS Reference:	OCT2231310726		As received Water Content, %:	5
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	18-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	29-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-04	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	24.95	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	25.50			-
Sample Location, Description, Ident. and other required info. :	BH-04 - S13 (24.95-25.50)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
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ACTS Serial No.:	2173517
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215343	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-04
IR / WIR / RFI / Number:	-	Start Depth, m:	29.00
ACTS Reference:	OCT2231310727	End Depth, m:	29.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	18-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-04 - S15 (29.00-29.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	945.1
M_{cds}, Mass of Container and Oven Dry Specimen, g	895.3
M_c, Mass of Container, g	491.9
Mass of Moist Specimen, g	453.2
M_w, Mass of Water, g	49.8
M_s, Mass of Oven Dry Specimen, g	403.4
w, Water Content, %	12

Remark(s):

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The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No:	2173518
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

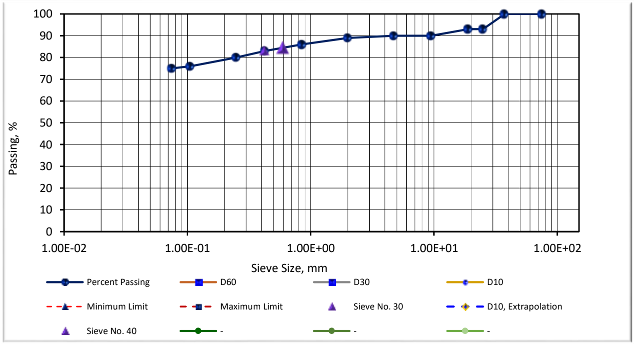
ASTM D2487-17 and ASTM D3282-15

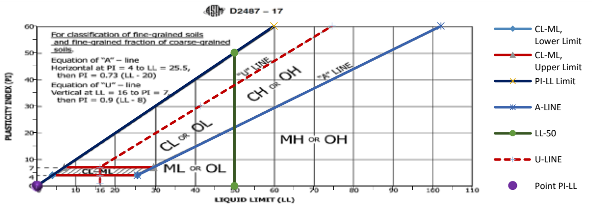
PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215343	Test Pit No. / Borehole No.:	BH-04	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	29.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310728	End Depth, m:	29.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	18-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-04 - S15 (29.00-29.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
1 1/2 in.	37.5	0.0	0	0	**100**	-	-	-	-
1 in.	25.0	27.0	7	7	**93**	-	-	-	-
3/4 in.	19.0	0.0	0	7	**93**	-	-	-	-
3/8 in.	9.5	12.7	3	10	**90**	-	-	-	-
No. 4	4.75	1.7	0	10	**90**	-	-	-	-
No. 10	2.00	3.8	1	11	**89**	-	-	-	-
No. 20	0.850	11.5	3	14	**86**	-	-	-	-
No. 40	0.425	12.0	3	17	**83**	-	-	-	-
No. 60	0.250	10.0	2	20	**80**	-	-	-	-
No. 140	0.106	16.4	4	24	**76**	-	-	-	-
No. 200	0.075	5.0	1	25	**75**	-	-	-	-
Pan	-	303.3	75	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	403.4	Moisture Content	12%





Description	Test Result	Description	Test Result
Gravel	**10%**	Coarse (19 - 75 mm)	7%
		Fine (4.75 - 19 mm)	3%
Sand	**15%**	Coarse (2.00 - 4.75 mm)	1%
		Medium (0.425 - 2.00 mm)	6%
		Fine (0.075 - 0.425 mm)	8%
Fines	**75%**		

Cu	-
Cc	-
D_{60}, mm	-
D_{30}, mm	-
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Silt with Sand(ML)**
	ASTM D 3282 (AASHTO M145-3)	**A-4(0) Silty Soils**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

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ACTS Serial No.	2173519
Reporting Date	02-Nov-22
Page	1 of 1

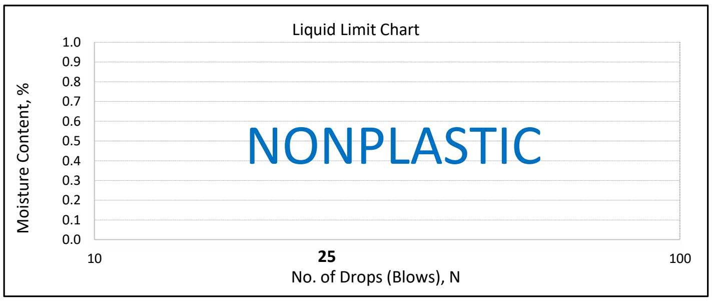
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215343	Description of Sample	Approximate Max Grain Size, mm:	25
Customer Reference:	-		Est. Sample Retained on 425µm, %:	17
ACTS Reference:	OCT2231310729		As received Water Content, %:	12
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	18-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	29-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-04	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	29.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	29.45			-
Sample Location, Description, Ident. and other required info. :	BH-04 - S15 (29.00-29.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

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Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

ACTS Serial No.:	2173520
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

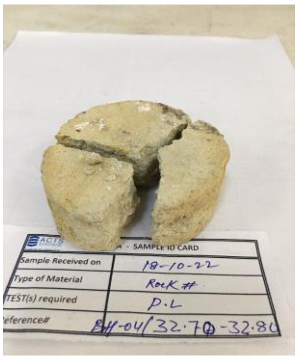
TWO No.:		ACTS-2215343	Name of Source / Supplier:	-
Customer Reference:		-	Bore Hole Number:	BH-04
ACTS Reference:		OCT2231310730	Start Depth, m:	32.70
IR / WIR / RFI / Number:		-	End Depth, m:	32.80
Sampling Date:		-	Storage (Curatorial History) Environment:	-
Receiving Date:		18-Oct-22	Test Apparatus Used — Name:	Digital Point Load Tester
Testing Date:		29-Oct-22	Test Apparatus Used — Model:	Matest A125
Sample Type:		Rock	Test Apparatus Used — Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):	Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:	-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:	-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Sample Location, Identification and other required information:		BH-04 - (32.70-32.80)		

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		61.6
Total Actual Length / Thickness(Axial) of Specimen, mm		33.5
D, Platen Separation, mm		33.5
De^2, mm^2		2630
De, Equivalent Core Diameter, De, mm		51.3
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		0.200
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		0.076
F, Size Correction Factor		1.01
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**0.077**
(2) K, Index to Strength Conversion Factor		19.6
σ_c, Uniaxial Compressive Strength, MPa		**1.49**
(1) Strength Classification		**Very Low**

PHOTOS

ACTS
CARD
Sample Received on
18-10-22
Type of Material
Rock
TEST(s) required
P.L
Reference#
BH-04/32.70-32.80

Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS Serial No.:	2173521
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

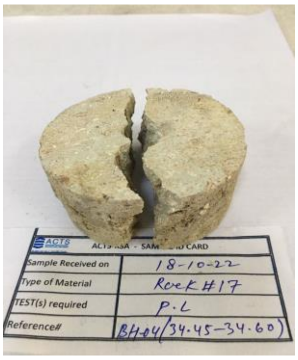
TWO No.:		ACTS-2215343	Name of Source / Supplier:		-
Customer Reference:		-	Bore Hole Number:		BH-04
ACTS Reference:		OCT2231310731	Start Depth, m:		34.45
IR / WIR / RFI / Number:		-	End Depth, m:		34.60
Sampling Date:		-	Storage (Curatorial History) Environment:		-
Receiving Date:		18-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:		29-Oct-22		Model:	Matest A125
Sample Type:		Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:		-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:		-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:		BH-04 - S17 (34.45-34.60)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		62.0
Total Actual Length / Thickness(Axial) of Specimen, mm		35.0
D, Platen Separation, mm		35.0
De^2, mm^2		2760
De, Equivalent Core Diameter, De, mm		52.5
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		1.40
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		0.507
F, Size Correction Factor		1.02
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**0.517**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**10.0**
(1) Strength Classification		**Medium**

PHOTOS

ACTS - SAMPLE ID CARD
Sample Received on
18-10-22
Type of Material
Rock #17
TEST(s) required
P.L
Reference#
BH04/34.45-34.60

Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS Serial No.:	2173522
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures: Uniaxial Compressive Strength of Intact Rock Core Specimens

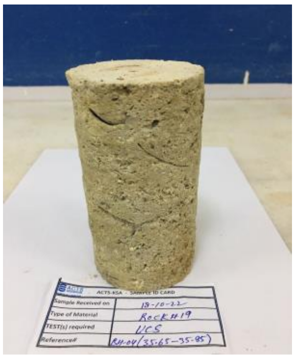
ASTM D7012 − 14, Method C

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

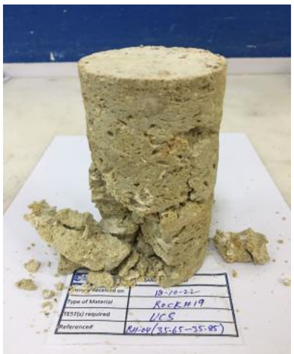
TWO No.	ACTS-2215343	Angle and Depth of Specimen:	-
Customer Reference:	-	Lithologic Description:	-
ACTS Reference:	OCT2231010057	Formation Name:	-
IR / WIR / RFI:	-	Load Direction with Respect to Lithology:	-
Sampling Date:	-	Moisture Condition of specimen at the start of shear:	-
Receiving Date:	18-Oct-22	Temperature at which test was performed if other than room temperature:	-
Testing Date:	30-Oct-22	Sampling Method Used:	-
Sample Type:	Rock	Sampling Plan Used if any:	-
Sample Located / Selected by:	Customer	Test Apparatus Used Name:	Compression Machine
Sample Collected / Extracted by:	ACTS	Model:	Matest E161
Name of Supplier / Source:	-	Calibration:	Valid till 27-06-2023
Borehole Number:	BH-04	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Start Depth, m:	35.65	Method Used in Moisture Content (Method A / Method B):	Method B(0.1%)
End Depth, m:	35.85	Name or Initial Person(s) who Performed the Test:	Aftab
Sample Location, Identification and other required information:	BH-04 - S19 (35.65-35.85)		-

Specimen Number	1	-	-
Moisture Content, %	13.7	-	-
Mass of Specimen (as received), g	652.0	-	-
Height (Length) of the Specimen, mm	125.00	-	-
Diameter of the Specimen, mm	62.50	-	-
Diameter of the Largest Mineral Grain, mm	-	-	-
Type of Specimen (Rock / Weak Rock)	Rock Specimen		
Compliance Remark(s), Diameter	-	-	-
L/D, Actual Length Diameter Ratio	2.00	-	-
Required Minimum L/D Ratio	2.00	-	-
Required Maximum L/D Ratio	2.50	-	-
Compliance Remark(s), L/D Ratio	Comply	-	-
Average Cross-sectional Area of Specimen, mm^2	3068.0	-	-
Volume of specimen, cm^3	383.5	-	-
Bulk Density(as received), g/cm³	1.700	-	-
Bulk Dry Density, g/cm³	1.495	-	-
Actual Stress Rate, MPa/s	-	-	-
Time to failure / Duration, minutes	-	-	-
P, Failure Load, kN	6.4	-	-
Physical Appearance of Specimen after Test	Refer to attached Photo	-	-
σ_u, Uniaxial Compressive Strength, MPa	**2.1**	**-**	**-**

Before



After



Remark(s):

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Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Joher Area Manager

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-END OF REPORT-

ACTS Serial No.:	2173523
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures: Uniaxial Compressive Strength of Intact Rock Core Specimens

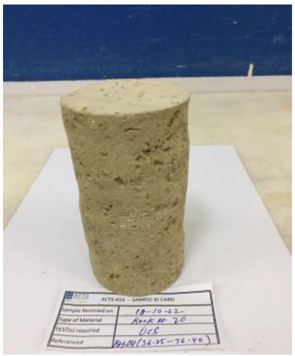
ASTM D7012 − 14, Method C

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

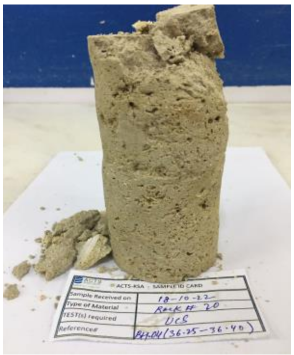
TWO No.	ACTS-2215343	Angle and Depth of Specimen:	-
Customer Reference:	-	Lithologic Description:	-
ACTS Reference:	OCT2231010059	Formation Name:	-
IR / WIR / RFI:	-	Load Direction with Respect to Lithology:	-
Sampling Date:	-	Moisture Condition of specimen at the start of shear:	-
Receiving Date:	18-Oct-22	Temperature at which test was performed if other than room temperature:	-
Testing Date:	30-Oct-22	Sampling Method Used:	-
Sample Type:	Rock	Sampling Plan Used if any:	-
Sample Located / Selected by:	Customer	Test Apparatus Used — Name:	Compression Machine
Sample Collected / Extracted by:	ACTS	Model:	Matest E161
Name of Supplier / Source:	-	Calibration:	Valid till 27-06-2023
Borehole Number:	BH-04	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Start Depth, m:	36.25	Method Used in Moisture Content (Method A / Method B):	Method B(0.1%)
End Depth, m:	36.40	Name or Initial Person(s) who Performed the Test:	Aftab
Sample Location, Identification and other required information:	BH-04 - S20 (36.25-36.40)		-

Specimen Number	1	-	-
Moisture Content, %	19.6	-	-
Mass of Specimen (as received), g	721.5	-	-
Height (Length) of the Specimen, mm	125.00	-	-
Diameter of the Specimen, mm	62.50	-	-
Diameter of the Largest Mineral Grain, mm	-	-	-
Type of Specimen (Rock / Weak Rock)	Rock Specimen		
Compliance Remark(s), Diameter	-	-	-
L/D, Actual Length Diameter Ratio	2.00	-	-
Required Minimum L/D Ratio	2.00	-	-
Required Maximum L/D Ratio	2.50	-	-
Compliance Remark(s), L/D Ratio	Comply	-	-
Average Cross-sectional Area of Specimen, mm^2	3068.0	-	-
Volume of specimen, cm^3	383.5	-	-
Bulk Density(as received), g/cm³	1.881	-	-
Bulk Dry Density, g/cm³	1.573	-	-
Actual Stress Rate, MPa/s	-	-	-
Time to failure / Duration, minutes	-	-	-
P, Failure Load, kN	8.3	-	-
Physical Appearance of Specimen after Test	Refer to attached Photo	-	-
σu, Uniaxial Compressive Strength, MPa	**2.7**	**-**	**-**

Before



After



Remark(s):

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Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Joher Area Manager

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-END OF REPORT-

ACTS Serial No.:	2173524
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT
Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications
ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

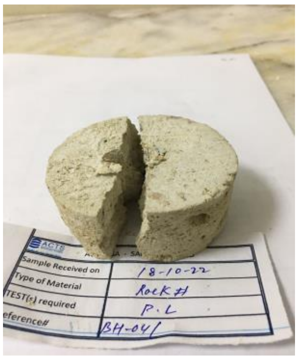
TWO No.:		ACTS-2215343	Name of Source / Supplier:	-
Customer Reference:		-	Bore Hole Number:	BH-04
ACTS Reference:		OCT2231010067	Start Depth, m:	36.40
IR / WIR / RFI / Number:		-	End Depth, m:	36.50
Sampling Date:		-	Storage (Curatorial History) Environment:	-
Receiving Date:		18-Oct-22	Test Apparatus Used – Name:	Digital Point Load Tester
Testing Date:		29-Oct-22	Test Apparatus Used – Model:	Matest A125
Sample Type:		Rock	Test Apparatus Used – Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):	Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:	-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:	-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Sample Location, Identification and other required information:		BH-04 - (36.40-36.50)		

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.0
Total Actual Length / Thickness(Axial) of Specimen, mm		34.5
D, Platen Separation, mm		34.5
De^2, mm^2		2770
De, Equivalent Core Diameter, De, mm		52.6
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		1.40
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		0.505
F, Size Correction Factor		1.02
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**0.515**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**10.0**
(1) Strength Classification		**Medium**

PHOTOS

Sample Received on
18-10-22
Type of Material
Rock #
TEST(s) required
P.L
Reference#
BH-04/

Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

Build on our credentials

ACTS Serial No.:	2173525
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures: Uniaxial Compressive Strength of Intact Rock Core Specimens

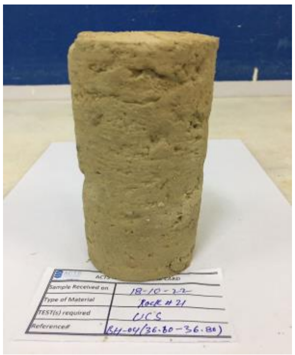
ASTM D7012 − 14, Method C

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

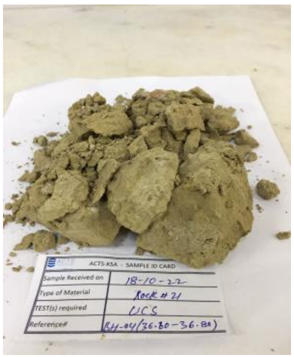
<table>
<tr><td>TWO No.</td><td>ACTS-2215343</td><td colspan="2">Angle and Depth of Specimen:</td><td>-</td></tr>
<tr><td>Customer Reference:</td><td>-</td><td colspan="2">Lithologic Description:</td><td>-</td></tr>
<tr><td>ACTS Reference:</td><td>OCT2231010076</td><td colspan="2">Formation Name:</td><td>-</td></tr>
<tr><td>IR / WIR / RFI:</td><td>-</td><td colspan="2">Load Direction with Respect to Lithology:</td><td>-</td></tr>
<tr><td>Sampling Date:</td><td>-</td><td colspan="2">Moisture Condition of specimen at the start of shear:</td><td>-</td></tr>
<tr><td>Receiving Date:</td><td>18-Oct-22</td><td colspan="2">Temperature at which test was performed if other than room temperature:</td><td>-</td></tr>
<tr><td>Testing Date:</td><td>30-Oct-22</td><td colspan="2">Sampling Method Used:</td><td>-</td></tr>
<tr><td>Sample Type:</td><td>Rock</td><td colspan="2">Sampling Plan Used if any:</td><td>-</td></tr>
<tr><td>Sample Located / Selected by:</td><td>Customer</td><td rowspan="3">Test Apparatus Used</td><td>Name:</td><td>Compression Machine</td></tr>
<tr><td>Sample Collected / Extracted by:</td><td>ACTS</td><td>Model:</td><td>Matest E161</td></tr>
<tr><td>Name of Supplier / Source:</td><td>-</td><td>Calibration:</td><td>Valid till 27-06-2023</td></tr>
<tr><td>Borehole Number:</td><td>BH-04</td><td colspan="2">Methodology Used for Significant Digits and Rounding Off Numbers:</td><td>-</td></tr>
<tr><td>Start Depth, m:</td><td>36.60</td><td colspan="2">Method Used in Moisture Content (Method A / Method B):</td><td>Method B(0.1%)</td></tr>
<tr><td>End Depth, m:</td><td>36.80</td><td colspan="2" rowspan="2">Name or Initial Person(s) who Performed the Test:</td><td>Aftab</td></tr>
<tr><td>Sample Location, Identification and other required information:</td><td>BH-04 - S21 (36.60-36.80)</td><td>-</td></tr>
</table>

Specimen Number	1	-	-
Moisture Content, %	24.4	-	-
Mass of Specimen (as received), g	682.0	-	-
Height (Length) of the Specimen, mm	124.00	-	-
Diameter of the Specimen, mm	62.00	-	-
Diameter of the Largest Mineral Grain, mm	-	-	-
Type of Specimen (Rock / Weak Rock)	Rock Specimen		
Compliance Remark(s), Diameter	-	-	-
L/D, Actual Length Diameter Ratio	2.00	-	-
Required Minimum L/D Ratio	2.00	-	-
Required Maximum L/D Ratio	2.50	-	-
Compliance Remark(s), L/D Ratio	Comply	-	-
Average Cross-sectional Area of Specimen, mm^2	3019.1	-	-
Volume of specimen, cm^3	374.4	-	-
Bulk Density(as received), g/cm^3	1.822	-	-
Bulk Dry Density, g/cm^3	1.464	-	-
Actual Stress Rate, MPa/s	-	-	-
Time to failure / Duration, minutes	-	-	-
P, Failure Load, kN	2.3	-	-
Physical Appearance of Specimen after Test	Refer to attached Photo	-	-
σ_u, Uniaxial Compressive Strength, MPa	**0.8**	**-**	**-**

Before



After



Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johar Area Manager

ACTS

LEGAL NOTICED:
ACTS Shall bear no responsibility for the authenticity of the sample which was the basis of this report unless the sampling is conducted by ACTS employees. This will be clearly indicated in the relative test report. The information given in ACTS reports is for the use of the client; it is not to be abstracted or published by any means or in any form in whole or in part, prior written consent from ACTS is required in the case of necessity for use of the report. It is strictly prohibited to use this report for advertising purposes. ACTS shall not assume any responsibility for any interpretations of the report except when the interpretation is given in writing by ACTS. Neither ACTS nor its employees shall bear any responsibility for the damage, loss, omission, failure or injury; arising directly or indirectly in connection with ACTS performance of testing, inspection, calibration of materials, Instruments or other articles.

-END OF REPORT-

ACTS
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ACTS Serial No.:	2173526
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215343	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-04
IR / WIR / RFI / Number:	-	Start Depth, m:	37.45
ACTS Reference:	OCT2231010077	End Depth, m:	38.00
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	18-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-04 - S22 (37.45-38.00)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	1012.4
M_{cds}, Mass of Container and Oven Dry Specimen, g	927.1
M_c, Mass of Container, g	559.7
Mass of Moist Specimen, g	452.7
M_w, Mass of Water, g	85.3
M_s, Mass of Oven Dry Specimen, g	367.4
w, Water Content, %	23

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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كاي أس أي ال ال سي
المملكة العربية السعودية
المكتب الرئيسي: جدة – حي المنار (٥)
تلفون: ٠١٢٦٧٧٢٩٨٣ فاكس: ٠١٢٦٢٨٤٩٩٠
س – ت: ٤٠٣٠٢٢١١٦٨
ص.ب. ١٠٨٥٥٨ جدة – رمز بريدي ٢١٣٥١
acts@acts-int.com

فروع المختبر	Laboratories
جدة	Jeddah
٠١٢٦٧٧٢٩٨٣	0126772983
الرياض	Riyadh
٠١١٢٧٠١٤١٧	0112701417
الخبر	Al Khobar
٠١٣٨٩٦٧١٤٧	0138967147

-END OF REPORT-

ACTS Serial No:	2173527
Reporting Date:	2-Nov-22
Page	1 of 1

ACTS
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STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

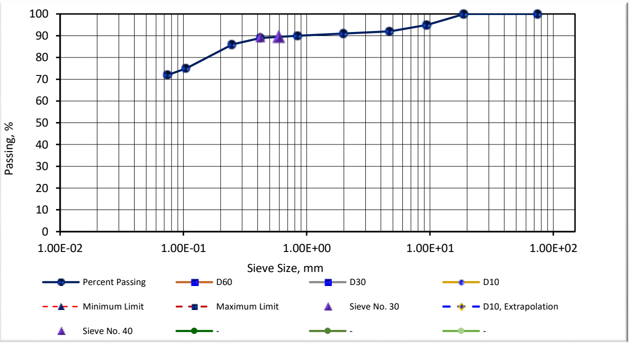
ASTM D2487-17 and ASTM D3282-15

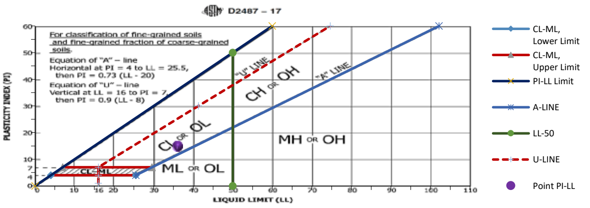
PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215343	Test Pit No. / Borehole No.:	BH-04	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	37.45		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231010078	End Depth, m:	38.00		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	18-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-04 - S22 (37.45-38.00)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	20.1	5	5	**95**	-	-	-	-
No. 4	4.75	7.8	2	8	**92**	-	-	-	-
No. 10	2.00	4.4	1	9	**91**	-	-	-	-
No. 20	0.850	4.4	1	10	**90**	-	-	-	-
No. 40	0.425	5.4	1	11	**89**	-	-	-	-
No. 60	0.250	10.1	3	14	**86**	-	-	-	-
No. 140	0.106	41.3	11	25	**75**	-	-	-	-
No. 200	0.075	8.0	2	28	**72**	-	-	-	-
Pan	-	265.9	72	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	367.4	Moisture Content	23%





Description	Test Result	Description	Test Result
Gravel	**8%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	8%
Sand	**20%**	Coarse (2.00 - 4.75 mm)	1%
		Medium (0.425 - 2.00 mm)	2%
		Fine (0.075 - 0.425 mm)	17%
Fines	**72%**		

Cu	-
Cc	-
D_{60}, mm	-
D_{30}, mm	-
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	36
	PL	21
	PI	15
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Lean Clay with Sand(CL)**
	ASTM D 3282 (AASHTO M145-3)	**A-6(10) Clayey Soils**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.	2173528
Reporting Date	02-Nov-22
Page	1 of 1

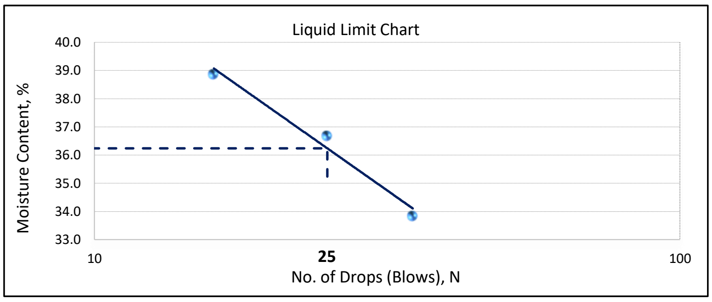
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215343	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425μm, %:	11
ACTS Reference:	OCT2231010079		As received Water Content, %:	23
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	18-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	29-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-04	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	37.45	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	38.00			-
Sample Location, Description, Ident. and other required info. :	BH-04 - S22 (37.45-38.00)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	16	25	35	---	---	---
Container Ref.	C-1	XY-1	C-35	-	C-4	C-5
A, Mass of Container, g	62.17	58.36	65.37	-	63.22	62.59
B, Mass of Wet Soil + Container, g	74.78	66.78	81.78	-	71.77	70.09
C, Mass of Dry Soil + Container, g	71.25	64.52	77.63	-	70.26	68.77
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	38.9	36.7	33.8	-	21.4	21.4
Limits	Liquid (LL) =		36	Plastic (PL) =		21
Plasticity Index (PI)	PI = (LL - PL) =		15			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**36**	-	-
PL	**21**	-	-
PI	**15**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	ACTS M. Johor Area Manager

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-END OF REPORT-

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ACTS Serial No.:	2173485
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215330	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-03
IR / WIR / RFI / Number:	-	Start Depth, m:	1.00
ACTS Reference:	OCT2231310694	End Depth, m:	1.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	16-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-03 - S1 (1.00-1.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	667.4
M_{cds}, Mass of Container and Oven Dry Specimen, g	631.9
M_c, Mass of Container, g	307.4
Mass of Moist Specimen, g	360
M_w, Mass of Water, g	35.5
M_s, Mass of Oven Dry Specimen, g	324.5
w, Water Content, %	11

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No:	2173486
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215330	Test Pit No. / Borehole No.:	BH-03	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	1.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310695	End Depth, m:	1.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	16-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-03 - S1 (1.00-1.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	**-**	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	27.0	8	8	**92**	-	-	-	-
No. 4	4.75	2.1	1	9	**91**	-	-	-	-
No. 10	2.00	34.0	10	19	**81**	-	-	-	-
No. 20	0.850	59.5	18	38	**62**	-	-	-	-
No. 40	0.425	51.8	16	54	**46**	-	-	-	-
No. 60	0.250	58.7	18	72	**28**	-	-	-	-
No. 140	0.106	68.8	21	93	**7**	-	-	-	-
No. 200	0.075	6.3	2	95	**5**	-	-	-	-
Pan	-	16.3	5	100	**0**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
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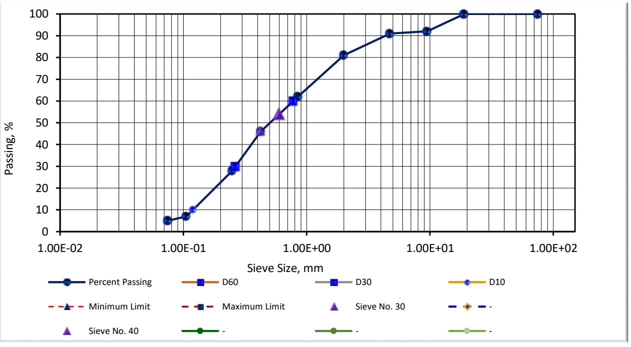
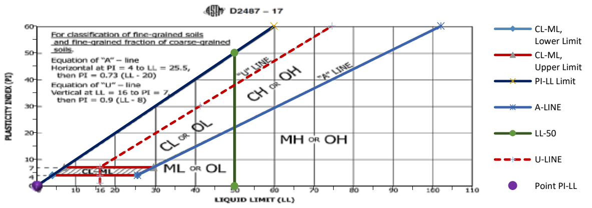
-	-	-	-	-	**-**	-	-	-	-

Mass of the Tested Sample,g	324.5	Moisture Content	11%





Description	Test Result	Description	Test Result
Gravel	**9%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	9%
Sand	**86%**	Coarse (2.00 - 4.75 mm)	10%
		Medium (0.425 - 2.00 mm)	35%
		Fine (0.075 - 0.425 mm)	41%
Fines	**5%**		

Cu	6.505
Cc	0.753
D_{60}, mm	0.779
D_{30}, mm	0.265
D_{10}, mm	0.120
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.	2173487
Reporting Date	02-Nov-22
Page	1 of 1

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS

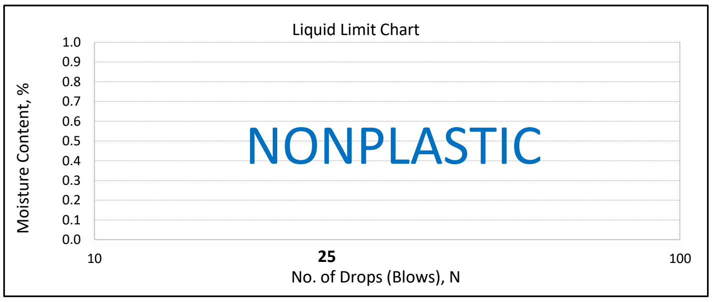
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215330	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	54
ACTS Reference:	OCT2231310696		As received Water Content, %:	11
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	16-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	30-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-03	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	1.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	1.45			-
Sample Location, Description, Ident. and other required info. :	BH-03 - S1 (1.00-1.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	ACTS M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2173488
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215330	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-03
IR / WIR / RFI / Number:	-	Start Depth, m:	13.00
ACTS Reference:	OCT2231310697	End Depth, m:	14.50
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	16-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-03 - S10 (13.00-14.50)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	800
M_{cds}, Mass of Container and Oven Dry Specimen, g	722.1
M_c, Mass of Container, g	412.2
Mass of Moist Specimen, g	387.8
M_w, Mass of Water, g	77.9
M_s, Mass of Oven Dry Specimen, g	309.9
w, Water Content, %	25

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No:	2173489
Reporting Date:	2-Nov-22
Page	1 of 1

ACTS
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STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215330	Test Pit No. / Borehole No.:	BH-03	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	13.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310698	End Depth, m:	14.50		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	16-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-03 - S10 (13.00-14.50)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	0.0	0	0	**100**	-	-	-	-
No. 10	2.00	8.2	3	3	**97**	-	-	-	-
No. 20	0.850	30.4	10	12	**88**	-	-	-	-
No. 40	0.425	43.4	14	26	**74**	-	-	-	-
No. 60	0.250	55.3	18	44	**56**	-	-	-	-
No. 140	0.106	73.9	24	68	**32**	-	-	-	-
No. 200	0.075	9.1	3	71	**29**	-	-	-	-
Pan	-	89.6	29	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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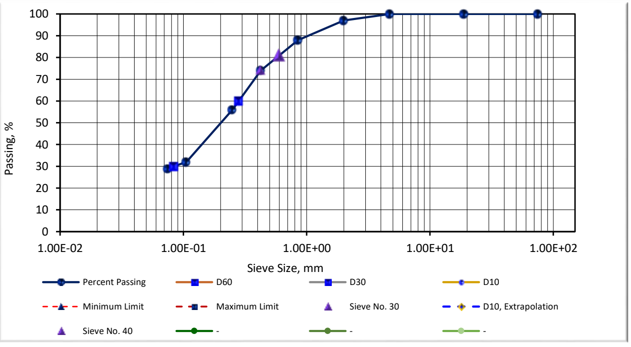
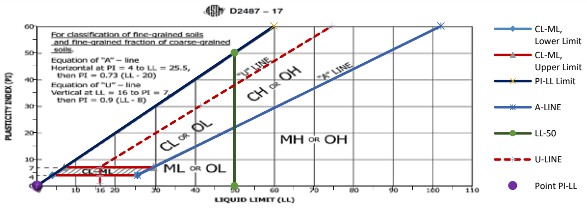
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	309.9	Moisture Content	25%





Description	Test Result	Description	Test Result
Gravel	**0%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	**71%**	Coarse (2.00 - 4.75 mm)	3%
		Medium (0.425 - 2.00 mm)	23%
		Fine (0.075 - 0.425 mm)	45%
Fines	**29%**		

Cu	-
Cc	-
D_{60}, mm	0.281
D_{30}, mm	0.084
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Silty Sand(SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-2-4(0) Silty or Clayey Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
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ACTS Serial No.	2173490
Reporting Date	02-Nov-22
Page	1 of 1

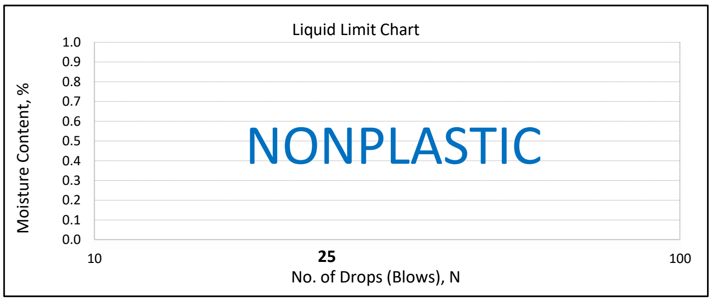
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215330	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425µm, %:	26
ACTS Reference:	OCT2231310699		As received Water Content, %:	25
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	16-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	30-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-03	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	13.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	14.50			-
Sample Location, Description, Ident. and other required info. :	BH-03 - S10 (13.00-14.50)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2173491
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215330	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-03
IR / WIR / RFI / Number:	-	Start Depth, m:	26.50
ACTS Reference:	OCT2231310700	End Depth, m:	26.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	16-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-03 - S14 (26.50-26.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	651.8
M_{cds}, Mass of Container and Oven Dry Specimen, g	606.2
M_c, Mass of Container, g	309.2
Mass of Moist Specimen, g	342.6
M_w, Mass of Water, g	45.6
M_s, Mass of Oven Dry Specimen, g	297
w, Water Content, %	15

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No:	2173492
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

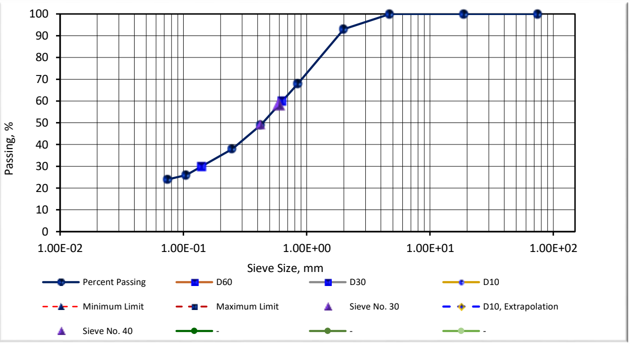
ASTM D2487-17 and ASTM D3282-15

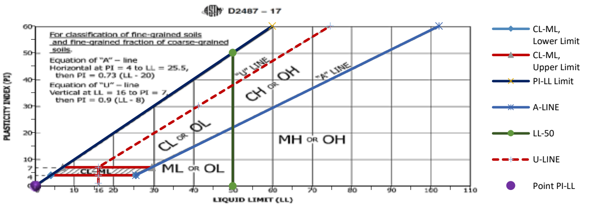
PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215330	Test Pit No. / Borehole No.:	BH-03	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	26.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310701	End Depth, m:	26.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	16-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-03 - S14 (26.50-26.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	0.0	0	0	**100**	-	-	-	-
No. 10	2.00	20.7	7	7	**93**	-	-	-	-
No. 20	0.850	73.9	25	32	**68**	-	-	-	-
No. 40	0.425	56.1	19	51	**49**	-	-	-	-
No. 60	0.250	32.4	11	62	**38**	-	-	-	-
No. 140	0.106	35.3	12	74	**26**	-	-	-	-
No. 200	0.075	6.4	2	76	**24**	-	-	-	-
Pan	-	72.2	24	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	297.0	Moisture Content	15%





Description	Test Result	Description	Test Result
Gravel	**0%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	**76%**	Coarse (2.00 - 4.75 mm)	7%
		Medium (0.425 - 2.00 mm)	44%
		Fine (0.075 - 0.425 mm)	25%
Fines	**24%**		

Cu	-
Cc	-
D_{60}, mm	0.635
D_{30}, mm	0.141
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Silty Sand(SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

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ACTS Serial No.	2173493
Reporting Date	02-Nov-22
Page	1 of 1

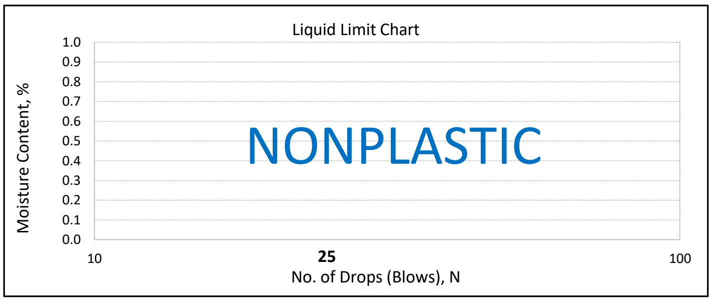
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215330	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425µm, %:	51
ACTS Reference:	OCT2231310702		As received Water Content, %:	15
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	16-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	30-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-03	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	26.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	26.95			-
Sample Location, Description, Ident. and other required info. :	BH-03 - S14 (26.50-26.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

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Prepared By	Reviewed By	Approved By
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.:	2173494
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

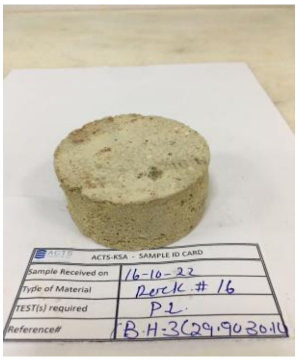
ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

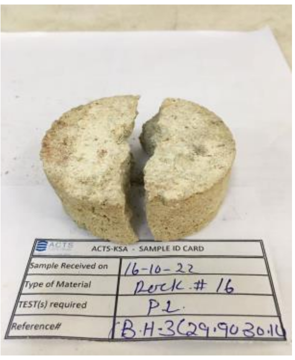
TWO No.:	ACTS-2215330	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-03
ACTS Reference:	OCT2231310703	Start Depth, m:		29.90
IR / WIR / RFI / Number:	-	End Depth, m:		30.10
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	16-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	29-Oct-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) — Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) — Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-03 - S16 (29.90-30.10)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		34.0
D, Platen Separation, mm		34.0
De^2, mm^2		2750
De, Equivalent Core Diameter, De, mm		52.4
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		3.50
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		1.27
F, Size Correction Factor		1.02
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**1.30**
(2) K, Index to Strength Conversion Factor		19.7
σ_c, Uniaxial Compressive Strength, MPa		**25.0**
(1) Strength Classification		**High**

PHOTOS


ACTS-KSA - SAMPLE ID CARD
Sample Received on 16-10-22
Type of Material Rock # 16
TEST(s) required P.L.
Reference# B.H-3(29.90-30.10

Before


ACTS-KSA - SAMPLE ID CARD
Sample Received on 16-10-22
Type of Material Rock # 16
TEST(s) required P.L.
Reference# B.H-3(29.90-30.10

After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS Serial No.:	2173495
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

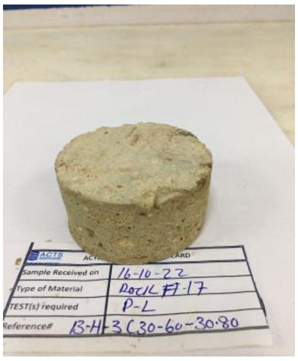
ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

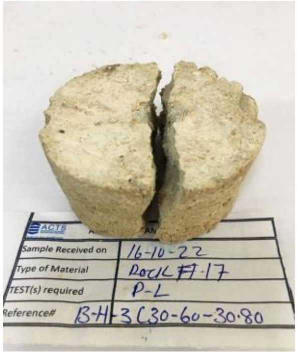
TWO No.:		ACTS-2215330	Name of Source / Supplier:	-
Customer Reference:		-	Bore Hole Number:	BH-03
ACTS Reference:		OCT2231310704	Start Depth, m:	30.60
IR / WIR / RFI / Number:		-	End Depth, m:	30.80
Sampling Date:		-	Storage (Curatorial History) Environment:	-
Receiving Date:		16-Oct-22	Test Apparatus Used – Name:	Digital Point Load Tester
Testing Date:		29-Oct-22	Test Apparatus Used – Model:	Matest A125
Sample Type:		Rock	Test Apparatus Used – Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):	Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:	-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:	-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Sample Location, Identification and other required information:		BH-03 - S17 (30.60-30.80)		

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.0
Total Actual Length / Thickness(Axial) of Specimen, mm		35.0
D, Platen Separation, mm		35.0
De^2, mm^2		2810
De, Equivalent Core Diameter, De, mm		53.0
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		4.50
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		1.60
F, Size Correction Factor		1.03
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**1.65**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**31.7**
(1) Strength Classification		**High**

PHOTOS



Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS
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ACTS Serial No.:	2173496
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

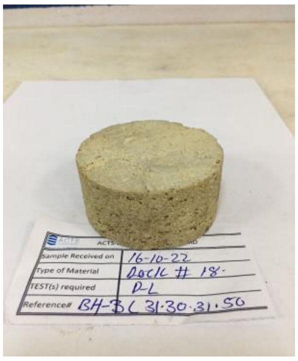
ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:		ACTS-2215330	Name of Source / Supplier:	-
Customer Reference:		-	Bore Hole Number:	BH-03
ACTS Reference:		OCT2231310709	Start Depth, m:	31.30
IR / WIR / RFI / Number:		-	End Depth, m:	31.50
Sampling Date:		-	Storage (Curatorial History) Environment:	-
Receiving Date:		16-Oct-22	Test Apparatus Used Name:	Digital Point Load Tester
Testing Date:		29-Oct-22	Model:	Matest A125
Sample Type:		Rock	Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):	Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:	-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:	-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Sample Location, Identification and other required information:		BH-03 - S18 (31.30-31.50)		

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		34.5
D, Platen Separation, mm		34.5
De^2, mm^2		2790
De, Equivalent Core Diameter, De, mm		52.8
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		2.20
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		0.789
F, Size Correction Factor		1.02
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**0.805**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**15.6**
(1) Strength Classification		**Medium**

PHOTOS


Sample Received on 16-10-22
Type of Material Rock # 18-
TEST(s) required P-L
Reference# BH-3 (31.30-31.50

Before

ACTS-KSA - SAMPLE ID CARD
Sample Received on 16-10-22
Type of Material Rock # 18-
TEST(s) required P-L
Reference# BH-3 (31.30-31.50

After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2173497
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215330	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-03
IR / WIR / RFI / Number:	-	Start Depth, m:	38.45
ACTS Reference:	OCT2231310710	End Depth, m:	40.00
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	16-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-03 - S22 (38.45-40.00)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	894.8
M_{cds}, Mass of Container and Oven Dry Specimen, g	828.5
M_c, Mass of Container, g	481.2
Mass of Moist Specimen, g	413.6
M_w, Mass of Water, g	66.3
M_s, Mass of Oven Dry Specimen, g	347.3
w, Water Content, %	19

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No:	2173498
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

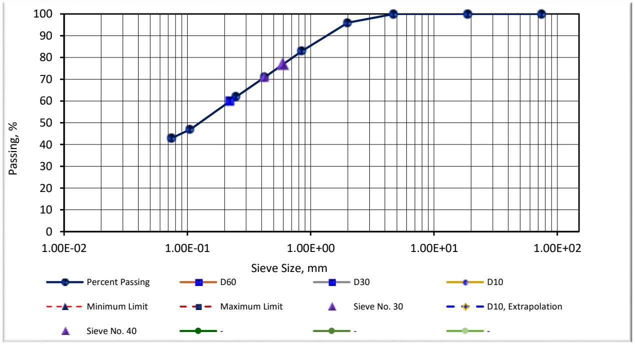
ASTM D2487-17 and ASTM D3282-15

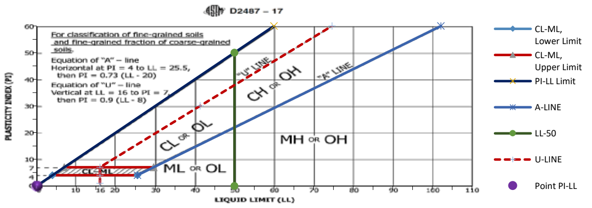
PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215330	Test Pit No. / Borehole No.:	BH-03	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	38.45		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310711	End Depth, m:	40.00		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	16-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-03 - S22 (38.45-40.00)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	0.0	0	0	**100**	-	-	-	-
No. 10	2.00	13.0	4	4	**96**	-	-	-	-
No. 20	0.850	47.5	14	17	**83**	-	-	-	-
No. 40	0.425	41.3	12	29	**71**	-	-	-	-
No. 60	0.250	29.6	9	38	**62**	-	-	-	-
No. 140	0.106	52.9	15	53	**47**	-	-	-	-
No. 200	0.075	12.5	4	57	**43**	-	-	-	-
Pan	-	150.5	43	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	347.3	Moisture Content	19%





Description	Test Result	Description	Test Result
Gravel	**0%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	**57%**	Coarse (2.00 - 4.75 mm)	4%
		Medium (0.425 - 2.00 mm)	25%
		Fine (0.075 - 0.425 mm)	28%
Fines	**43%**		

Cu	-
Cc	-
D_{60}, mm	0.223
D_{30}, mm	-
D_{10}, mm	-
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Silty Sand(SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-4(0) Silty Soils**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173499
Reporting Date	02-Nov-22
Page	1 of 1

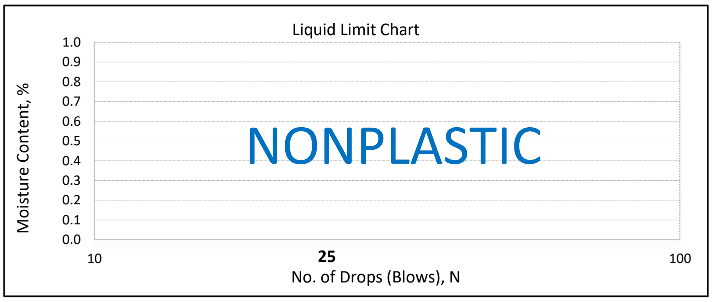
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO: -
TESTED AT: ACTS Jeddah Main Branch

TWO No:	ACTS-2215330	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425µm, %:	29
ACTS Reference:	OCT2231310712		As received Water Content, %:	19
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	16-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	30-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-03	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	38.45	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	40.00			-
Sample Location, Description, Ident. and other required info. :	BH-03 - S22 (38.45-40.00)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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Prepared By	Reviewed By	Approved By
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173626
Reporting Date	02-Nov-22
Page	1 of 1

TEST REPORT

Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils

ASTM D2974 − 20$^{\varepsilon 1}$

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215330	Name of Supplier / Source:	-
Customer Reference:	-	Drill Hole/Bore Hole Number:	BH-03
IR / WIR / RFI / Number:	-	Start Depth, m:	30.60
ACTS Reference:	OCT2231310705	End Depth, m:	30.80
Sampling Date:	16-Oct-22	Reference or Specification Used:	-
Receiving Date:	16-Oct-22	Test Method Used:	Method A (General Classification)
Testing Date:	02-Nov-22	Sampling Method Used:	-
Sample Selected / Located by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Name or Initial of Person(s) who performed the test:	Noushad
Sample Type:	Rock		-
Sample Location, Identification and other required information:	BH-03 - S17 (30.60-30.80)	The methodology used to specify how data are recorded on the test data sheet(s)/form(s):	ASTM D6026
		-	-
		-	-

Mc, Mass of Container Plus Lid, g rounding .01	75.09
Mcms, Mass of Container with Lid plus Moist Specimen, g	100.84
Mcds, Mass of Container with lid plus Oven-Dried Specimen, g	100.65
Mw, Mass of Water, g	0.19
Ms, Mass of Oven-Dried Specimen, g	25.56
w, Water Content as a Percentage of Oven-Dried Mass, %	1
Mcas, Mass of Container with Lid plus Ashed Specimen, g	100.29
Ma, Mass of Ash, g	25.20
Furnace Temperature Used for Ash Content Determinations, °C	440

	Test Results	Requirements / Limits	Compliance Remark
Ac, Ash Content, %	98.6	-	-
Om, Organic Material, %	1.4	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	ACTS M. Johor Area Manager

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ACTS Serial No.	2173627
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Determination of the pH value

BS 1377-3:2018, Clause 12

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215330	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-03
ACTS Reference:	OCT2231310706	Start Depth, m:	30.60
IR / WIR / RFI Number:	-	End Depth, m:	30.80
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	16-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used:	Electrometric Method
Sample Located / Selected by:	Customer	Sampling Method Used:	-
Sample Collected / Extracted by:	ACTS	Sampling Plan Used if any:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Specification / Reference:	-
	-	-	-
Sample Location, Description, Identification and other required info.:	BH-03 - S17 (30.60-30.80)	-	-

	Test Results	Requirement / Limit	Compliance Remark
pH value of the soil suspension	8.2	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

س.ت. ٤٠٣٠٢٢١١٦٨

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ACTS Serial No.	2173628
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the Chloride Content

BS 1377-3:2018, Clause 9

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215330	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-03
ACTS Reference:	OCT2231310707	Start Depth, m:	30.60
IR / WIR / RFI Number:	-	End Depth, m:	30.80
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	16-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used (Clause 9.2 or 9.3)	9.2 Determination of Water-Soluble Chloride Content (Volhard's Method)
Sample Located / Selected by:	Customer	Water to Soil Ratio Used for Preparing the Soluble Extract for Clause 9.2 only:	water-soil ratio is 2 : 1
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-03 - S17 (30.60-30.80)	-	-

Trial	1	2
Percentage by Dry Mass of the Original Sample Passing the 2 mm Test Sieve, %	-	-
V_2, Volume of the Silver Nitrate Solution added (AgNO3), mL	60.0	-
V_3, Volume of Standardized Thiocyanate Solution Added, ml	3.2	-
C, Concentration of the Standardized Thiocyanate Solution, mol/L	0.1	-

	Test Results	Requirements / Limit	Compliance Remark
Chloride Ion Content, %	0.40	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173629
Reporting Date	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Gravimetric Method for Analysis of Acid or Water Extract or Groundwater Sulfate
BS 1377-3:2018, Clause 7.6

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215330	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-03
ACTS Reference:	OCT2231310708	Start Depth, m:	30.60
IR / WIR / RFI Number:	-	End Depth, m:	30.80
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	16-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type :	Rock	Method of Preparation of Test Specimen:	-
Sample Located / Selected by :	Customer	Procedure Used:	Determination of Water-Soluble Sulfate in Soil (WS)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-03 - S17 (30.60-30.80)	-	-

Trial	1	2
Percentage Finer than 2 mm in Original Sample, %	-	-
Mass of Each Test Specimen Used, g	50.010	-
Mass of Ignited Precipitate, g	0.071	-
pH of Water Extract, pH	7.9	-

Description	Test Result	Requirement / Limit	Compliance Remark
SO_3, Water-Soluble Sulfate Content,mg/L	**480**	-	-
SO_3, Water-Soluble Sulfate Content,%	**0.10**	-	-
SO_4, Water-Soluble Sulfate Content, mg/L	**580**	-	-
SO_4, Water-Soluble Sulfate Content,%	**0.12**	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.:	2173481
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215329	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-02
IR / WIR / RFI / Number:	-	Start Depth, m:	3.95
ACTS Reference:	OCT2231310686	End Depth, m:	5.00
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	13-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-02 - S1 (3.95-5.00)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	955
M_{cds}, Mass of Container and Oven Dry Specimen, g	937.9
M_c, Mass of Container, g	512.4
Mass of Moist Specimen, g	442.6
M_w, Mass of Water, g	17.1
M_s, Mass of Oven Dry Specimen, g	425.5
w, Water Content, %	4

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS
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ACTS Serial No:	2173482
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

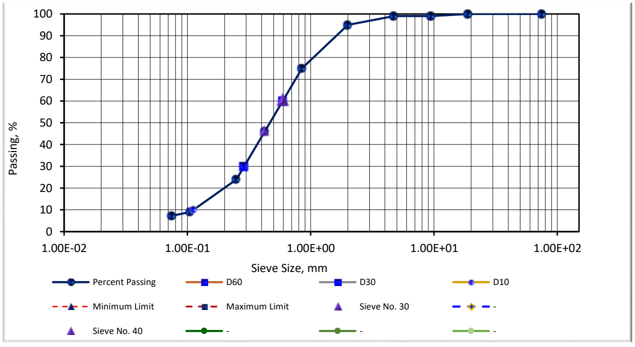
ASTM D2487-17 and ASTM D3282-15

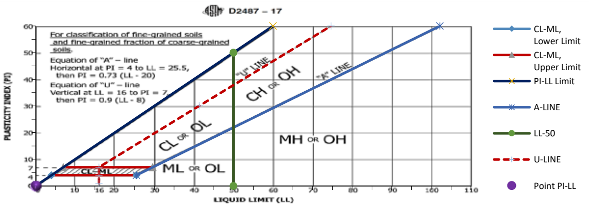
PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215329	Test Pit No. / Borehole No.:	BH-02	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	3.95		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310687	End Depth, m:	5.00		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	13-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-02 - S1 (3.95-5.00)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	4.0	1	1	**99**	-	-	-	-
No. 4	4.75	0.7	0	1	**99**	-	-	-	-
No. 10	2.00	14.9	4	5	**95**	-	-	-	-
No. 20	0.850	87.0	20	25	**75**	-	-	-	-
No. 40	0.425	125.1	29	54	**46**	-	-	-	-
No. 60	0.250	89.9	21	76	**24**	-	-	-	-
No. 140	0.106	64.6	15	91	**9**	-	-	-	-
No. 200	0.075	8.3	2	93	**7**	-	-	-	-
Pan	-	31.0	7	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	425.5	Moisture Content	4%





Description	Test Result	Description	Test Result
Gravel	**1%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	1%
Sand	**92%**	Coarse (2.00 - 4.75 mm)	4%
		Medium (0.425 - 2.00 mm)	49%
		Fine (0.075 - 0.425 mm)	39%
Fines	**7%**		

Cu	5.291
Cc	1.252
D_{60}, mm	0.594
D_{30}, mm	0.289
D_{10}, mm	0.112
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

ACTS

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-END OF REPORT-

ACTS Serial No.	2173483
Reporting Date	02-Nov-22
Page	1 of 1

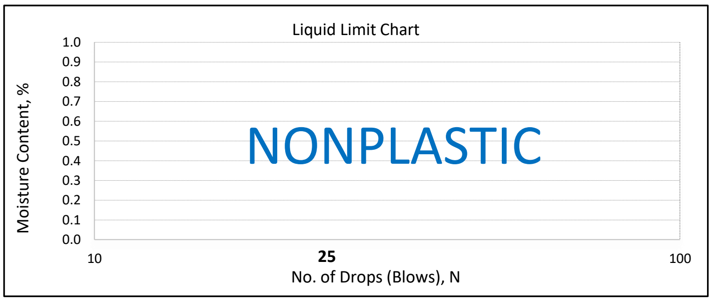
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215329	Description of Sample	Approximate Max Grain Size, mm:	9.5
Customer Reference:	-		Est. Sample Retained on 425µm, %:	54
ACTS Reference:	OCT2231310688		As received Water Content, %:	4
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	13-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	30-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-02	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	3.95	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	5.00			-
Sample Location, Description, Ident. and other required info. :	BH-02 - S1 (3.95-5.00)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

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Prepared By	Reviewed By	Approved By
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
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ACTS Serial No.:	2173484
Reporting Date:	2-Nov-22
Page	1 of 1

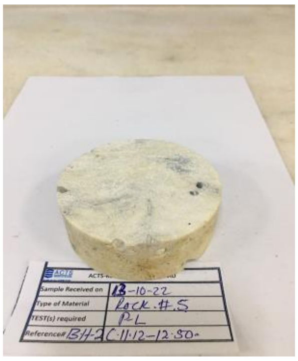
TEST REPORT
Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications
ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

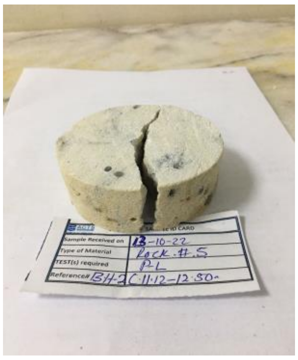
TWO No.:		ACTS-2215329	Name of Source / Supplier:		-
Customer Reference:		-	Bore Hole Number:		BH-02
ACTS Reference:		OCT2231310689	Start Depth, m:		11.12
IR / WIR / RFI / Number:		-	End Depth, m:		12.50
Sampling Date:		-	Storage (Curatorial History) Environment:		-
Receiving Date:		13-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:		29-Oct-22		Model:	Matest A125
Sample Type:		Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:		-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:		-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:		BH-02 - S5 (11.12-12.50)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		82.5
Total Actual Length / Thickness(Axial) of Specimen, mm		35.0
D, Platen Separation, mm		35.0
De^2, mm^2		3680
De, Equivalent Core Diameter, De, mm		60.7
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		8.00
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		2.17
F, Size Correction Factor		1.09
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**2.37**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**43.0**
(1) Strength Classification		**High**

PHOTOS



Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Norjehan Batua Norjehan Batua Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS Serial No.	2173622
Reporting Date	02-Nov-22
Page	1 of 1

TEST REPORT

Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils

ASTM D2974 − 20$^{\varepsilon 1}$

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215329	Name of Supplier / Source:	-
Customer Reference:	-	Drill Hole/Bore Hole Number:	BH-02
IR / WIR / RFI / Number:	-	Start Depth, m:	12.64
ACTS Reference:	OCT2231310690	End Depth, m:	14.00
Sampling Date:	13-Oct-22	Reference or Specification Used:	-
Receiving Date:	13-Oct-22	Test Method Used:	Method A (General Classification)
Testing Date:	02-Nov-22	Sampling Method Used:	-
Sample Selected / Located by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Name or Initial of Person(s) who performed the test:	Noushad
Sample Type:	Rock		-
Sample Location, Identification and other required information:	BH-02 - S6 (12.64-14.00)	The methodology used to specify how data are recorded on the test data sheet(s)/form(s):	ASTM D6026
		-	-
		-	-

Mc, Mass of Container Plus Lid, g rounding .01	78.12
Mcms, Mass of Container with Lid plus Moist Specimen, g	103.52
Mcds, Mass of Container with lid plus Oven-Dried Specimen, g	103.47
Mw, Mass of Water, g	0.05
Ms, Mass of Oven-Dried Specimen, g	25.35
w, Water Content as a Percentage of Oven-Dried Mass, %	0
Mcas, Mass of Container with Lid plus Ashed Specimen, g	102.90
Ma, Mass of Ash, g	24.78
Furnace Temperature Used for Ash Content Determinations, °C	440

	Test Results	Requirements / Limits	Compliance Remark
Ac, Ash Content, %	97.8	-	-
Om, Organic Material, %	2.2	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	ACTS ٤٠٣٠٢٢١١٦٨ - س.ت M. Johor Area Manager

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ACTS Serial No.	2173623
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Determination of the pH value

BS 1377-3:2018, Clause 12

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215329	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-02
ACTS Reference:	OCT2231310691	Start Depth, m:	12.64
IR / WIR / RFI Number:	-	End Depth, m:	14.00
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	13-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used:	Electrometric Method
Sample Located / Selected by:	Customer	Sampling Method Used:	-
Sample Collected / Extracted by:	ACTS	Sampling Plan Used if any:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Specification / Reference:	-
	-	-	-
Sample Location, Description, Identification and other required info.:	BH-02 - S6 (12.64-14.00)	-	-

	Test Results	Requirement / Limit	Compliance Remark
pH value of the soil suspension	8.6	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Managers

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-END OF REPORT-

ACTS Serial No.	2173624
Reporting Date:	2-Nov-22
Page	1 of 1

ACTS
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TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the Chloride Content

BS 1377-3:2018, Clause 9

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215329	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-02
ACTS Reference:	OCT2231310692	Start Depth, m:	12.64
IR / WIR / RFI Number:	-	End Depth, m:	14.00
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	13-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Rock	Test Method Used (Clause 9.2 or 9.3)	9.2 Determination of Water-Soluble Chloride Content (Volhard's Method)
Sample Located / Selected by:	Customer	Water to Soil Ratio Used for Preparing the Soluble Extract for Clause 9.2 only:	water-soil ratio is 2 : 1
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-02 - S6 (12.64-14.00)	-	-

Trial	1	2
Percentage by Dry Mass of the Original Sample Passing the 2 mm Test Sieve, %	-	-
V_2, Volume of the Silver Nitrate Solution added (AgNO3), mL	65.0	-
V_3, Volume of Standardized Thiocyanate Solution Added, ml	1.0	-
C, Concentration of the Standardized Thiocyanate Solution, mol/L	0.1	-

	Test Results	Requirements / Limit	Compliance Remark
Chloride Ion Content, %	0.45	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173625
Reporting Date	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Gravimetric Method for Analysis of Acid or Water Extract or Groundwater Sulfate
BS 1377-3:2018, Clause 7.6

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215329	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-02
ACTS Reference:	OCT2231310693	Start Depth, m:	12.64
IR / WIR / RFI Number:	-	End Depth, m:	14.00
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	13-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type :	Rock	Method of Preparation of Test Specimen:	-
Sample Located / Selected by :	Customer	Procedure Used:	Determination of Water-Soluble Sulfate in Soil (WS)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-02 - S6 (12.64-14.00)	-	-

Trial	1	2
Percentage Finer than 2 mm in Original Sample, %	-	-
Mass of Each Test Specimen Used, g	50.000	-
Mass of Ignited Precipitate, g	0.167	-
pH of Water Extract, pH	8.3	-

Description	Test Result	Requirement / Limit	Compliance Remark
SO_3, Water-Soluble Sulfate Content,mg/L	**1140**	-	-
SO_3, Water-Soluble Sulfate Content,%	**0.23**	-	-
SO_4, Water-Soluble Sulfate Content, mg/L	**1370**	-	-
SO_4, Water-Soluble Sulfate Content,%	**0.27**	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.:	2173463
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT

Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D2216 − 19

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215328	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-01
IR / WIR / RFI / Number:	-	Start Depth, m:	8.00
ACTS Reference:	OCT2231310664	End Depth, m:	8.45
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	26-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-01 - S4 (8.00-8.45)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	936.9
M_{cds}, Mass of Container and Oven Dry Specimen, g	926.6
M_c, Mass of Container, g	623
Mass of Moist Specimen, g	313.9
M_w, Mass of Water, g	10.3
M_s, Mass of Oven Dry Specimen, g	303.6
w, Water Content, %	3

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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-END OF REPORT-

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ACTS Serial No:	2173464
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

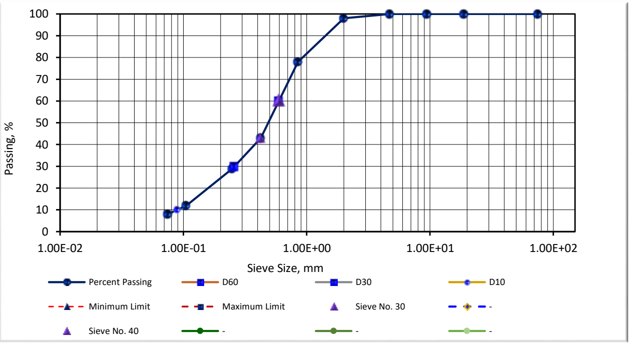
ASTM D2487-17 and ASTM D3282-15

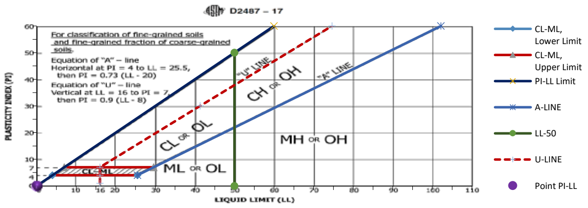
PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215328	Test Pit No. / Borehole No.:	BH-01	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	8.00		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310665	End Depth, m:	8.45		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	26-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-01 - S4 (8.00-8.45)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	0.6	0	0	**100**	-	-	-	-
No. 10	2.00	4.7	2	2	**98**	-	-	-	-
No. 20	0.850	60.9	20	22	**78**	-	-	-	-
No. 40	0.425	108.0	36	57	**43**	-	-	-	-
No. 60	0.250	41.3	14	71	**29**	-	-	-	-
No. 140	0.106	52.8	17	88	**12**	-	-	-	-
No. 200	0.075	10.9	4	92	**8**	-	-	-	-
Pan	-	24.4	8	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	303.6	Moisture Content	3%





Description	Test Result	Description	Test Result
Gravel	**0%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	**92%**	Coarse (2.00 - 4.75 mm)	2%
		Medium (0.425 - 2.00 mm)	55%
		Fine (0.075 - 0.425 mm)	35%
Fines	**8%**		

Cu	6.675
Cc	1.271
D_{60}, mm	0.595
D_{30}, mm	0.260
D_{10}, mm	0.089
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION		
	ASTM D 2487	**Well Graded Sand with Silt(SW-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.	2173465
Reporting Date	02-Nov-22
Page	1 of 1

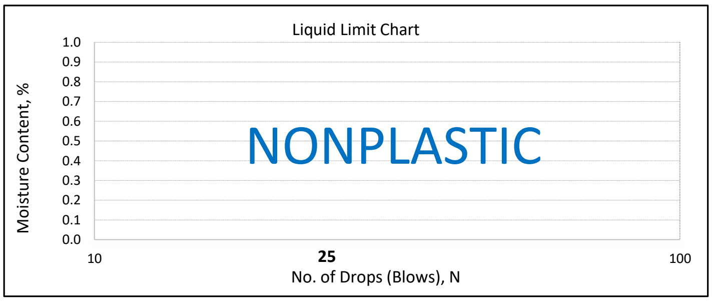
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215328	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425µm, %:	57
ACTS Reference:	OCT2231310666		As received Water Content, %:	3
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	26-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	29-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-01	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	8.00	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	8.45			-
Sample Location, Description, Ident. and other required info. :	BH-01 - S4 (8.00-8.45)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

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ACTS Serial No.:	2173466
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

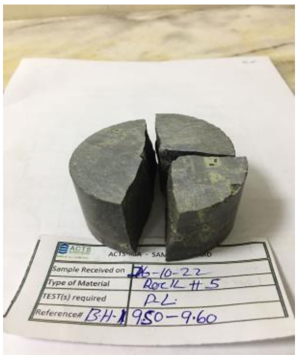
TWO No.:		ACTS-2215328	Name of Source / Supplier:	-
Customer Reference:		-	Bore Hole Number:	BH-01
ACTS Reference:		OCT2231310667	Start Depth, m:	9.50
IR / WIR / RFI / Number:		-	End Depth, m:	9.60
Sampling Date:		-	Storage (Curatorial History) Environment:	-
Receiving Date:		26-Oct-22	Test Apparatus Used – Name:	Digital Point Load Tester
Testing Date:		29-Oct-22	Test Apparatus Used – Model:	Matest A125
Sample Type:		Rock	Test Apparatus Used – Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):	Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:	-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:	-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:	-
Sample Location, Identification and other required information:		BH-01 - S5 (9.50-9.60)		

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		34.5
D, Platen Separation, mm		34.5
De^2, mm^2		2790
De, Equivalent Core Diameter, De, mm		52.8
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		29.6
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		10.6
F, Size Correction Factor		1.02
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**10.8**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**210**
(1) Strength Classification		**Extremely High**

PHOTOS

ACTS
Sample Received on 26-10-22
Type of Material Rock #5
TEST(s) required P.L
Reference# BH-1 950-9.60

Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

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Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS Serial No.:	2173467
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures: Uniaxial Compressive Strength of Intact Rock Core Specimens

ASTM D7012 − 14, Method C

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

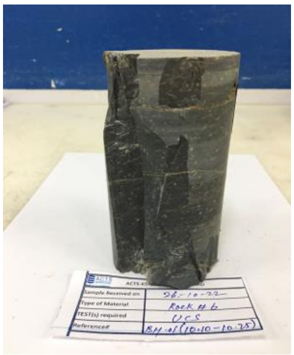
TWO No.	ACTS-2215328	Angle and Depth of Specimen:		-
Customer Reference:	-	Lithologic Description:		-
ACTS Reference:	OCT2231310668	Formation Name:		-
IR / WIR / RFI:	-	Load Direction with Respect to Lithology:		-
Sampling Date:	-	Moisture Condition of specimen at the start of shear:		-
Receiving Date:	26-Oct-22	Temperature at which test was performed if other than room temperature:		-
Testing Date:	30-Oct-22	Sampling Method Used:		-
Sample Type:	Rock	Sampling Plan Used if any:		-
Sample Located / Selected by:	Customer	Test Apparatus Used	Name:	Compression Machine
Sample Collected / Extracted by:	ACTS		Model:	Matest E161
Name of Supplier / Source:	-		Calibration:	Valid till 27-06-2023
Borehole Number:	BH-01	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Start Depth, m:	10.10	Method Used in Moisture Content (Method A / Method B):		Method B(0.1%)
End Depth, m:	10.25	Name or Initial Person(s) who Performed the Test:		Aftab
Sample Location, Identification and other required information:	BH-01 - S6 (10.10-10.25)			-

Specimen Number	1	-	-
Moisture Content, %	0.1	-	-
Mass of Specimen (as received), g	1098.0	-	-
Height (Length) of the Specimen, mm	127.00	-	-
Diameter of the Specimen, mm	63.50	-	-
Diameter of the Largest Mineral Grain, mm	-	-	-
Type of Specimen (Rock / Weak Rock)	Rock Specimen		
Compliance Remark(s), Diameter	-	-	-
L/D, Actual Length Diameter Ratio	2.00	-	-
Required Minimum L/D Ratio	2.00	-	-
Required Maximum L/D Ratio	2.50	-	-
Compliance Remark(s), L/D Ratio	Comply	-	-
Average Cross-sectional Area of Specimen, mm^2	3166.9	-	-
Volume of specimen, cm^3	402.2	-	-
Bulk Density(as received), g/cm^3	2.730	-	-
Bulk Dry Density, g/cm^3	2.727	-	-
Actual Stress Rate, MPa/s	-	-	-
Time to failure / Duration, minutes	-	-	-
P, Failure Load, kN	372.0	-	-
Physical Appearance of Specimen after Test	Refer to attached Photo	-	-
σ_u, Uniaxial Compressive Strength, MPa	**117.0**	**-**	**-**

Before

26-10-22
Rock H b
UCS
BH-01(10.10-10.25)

After



Remark(s):

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The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Joher Area Manager

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-END OF REPORT-

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ACTS Serial No.:	2173468
Reporting Date:	2-Nov-22
Page	1 of 1

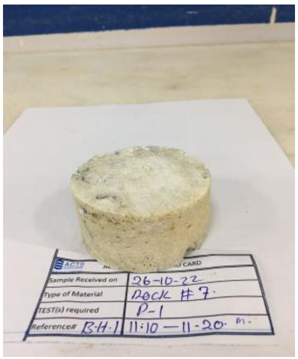
TEST REPORT
Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications
ASTM D5731 − 16

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

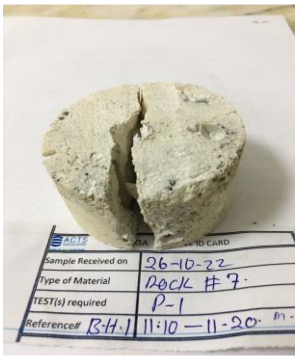
TWO No.:	ACTS-2215328	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-01
ACTS Reference:	OCT2231310669	Start Depth, m:		11.10
IR / WIR / RFI / Number:	-	End Depth, m:		11.20
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	26-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	29-Oct-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) — Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) — Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-01 - S7 (11.10-11.20)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		35.0
D, Platen Separation, mm		35.0
De^2, mm^2		2830
De, Equivalent Core Diameter, De, mm		53.2
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		4.70
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		1.66
F, Size Correction Factor		1.03
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**1.71**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**32.9**
(1) Strength Classification		**High**

PHOTOS



Before



After

Remark(s):
(1) Strength Classification based on ASTM D5731-16, Fig 6

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Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS Serial No.:	2173469
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures: Uniaxial Compressive Strength of Intact Rock Core Specimens

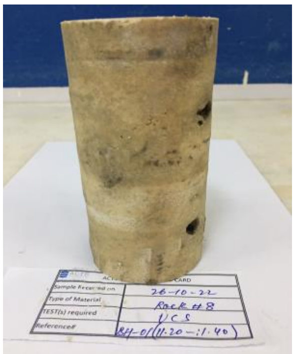
ASTM D7012 − 14, Method C

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

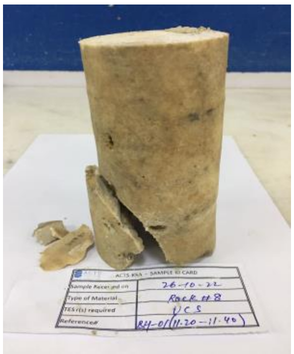
TWO No.	ACTS-2215328	Angle and Depth of Specimen:		-
Customer Reference:	-	Lithologic Description:		-
ACTS Reference:	OCT2231310670	Formation Name:		-
IR / WIR / RFI:	-	Load Direction with Respect to Lithology:		-
Sampling Date:	-	Moisture Condition of specimen at the start of shear:		-
Receiving Date:	26-Oct-22	Temperature at which test was performed if other than room temperature:		-
Testing Date:	30-Oct-22	Sampling Method Used:		-
Sample Type:	Rock	Sampling Plan Used if any:		-
Sample Located / Selected by:	Customer	Test Apparatus Used	Name:	Compression Machine
Sample Collected / Extracted by:	ACTS		Model:	Matest E161
Name of Supplier / Source:	-		Calibration:	Valid till 27-06-2023
Borehole Number:	BH-01	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Start Depth, m:	11.20	Method Used in Moisture Content (Method A / Method B):		Method B(0.1%)
End Depth, m:	11.40	Name or Initial Person(s) who Performed the Test:		Aftab
Sample Location, Identification and other required information:	BH-01 - S8 (11.20-11.40)			-

Specimen Number	1	-	-
Moisture Content, %	11.6	-	-
Mass of Specimen (as received), g	701.0	-	-
Height (Length) of the Specimen, mm	127.00	-	-
Diameter of the Specimen, mm	63.50	-	-
Diameter of the Largest Mineral Grain, mm	-	-	-
Type of Specimen (Rock / Weak Rock)	Rock Specimen		
Compliance Remark(s), Diameter	-	-	-
L/D, Actual Length Diameter Ratio	2.00	-	-
Required Minimum L/D Ratio	2.00	-	-
Required Maximum L/D Ratio	2.50	-	-
Compliance Remark(s), L/D Ratio	Comply	-	-
Average Cross-sectional Area of Specimen, mm^2	3166.9	-	-
Volume of specimen, cm^3	402.2	-	-
Bulk Density(as received), g/cm³	1.743	-	-
Bulk Dry Density, g/cm³	1.562	-	-
Actual Stress Rate, MPa/s	-	-	-
Time to failure / Duration, minutes	-	-	-
P, Failure Load, kN	17.5	-	-
Physical Appearance of Specimen after Test	Refer to attached Photo	-	-
σ_u, Uniaxial Compressive Strength, MPa	**5.5**	**-**	**-**

Before



After



Remark(s):

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Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Joher Area Manager

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-END OF REPORT-

ACTS
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ACTS Serial No.:	2173470
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215328	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-01
IR / WIR / RFI / Number:	-	Start Depth, m:	12.50
ACTS Reference:	OCT2231310671	End Depth, m:	12.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	26-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-01 - S9 (12.50-12.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	841.7
M_{cds}, Mass of Container and Oven Dry Specimen, g	822
M_c, Mass of Container, g	380.6
Mass of Moist Specimen, g	461.1
M_w, Mass of Water, g	19.7
M_s, Mass of Oven Dry Specimen, g	441.4
w, Water Content, %	4

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	ACTS M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No:	2173471
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

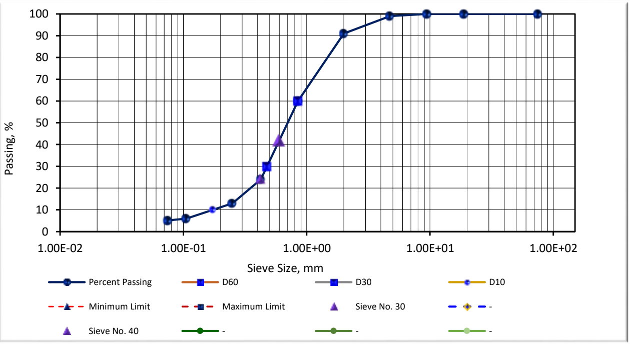
Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

ASTM D2487-17 and ASTM D3282-15

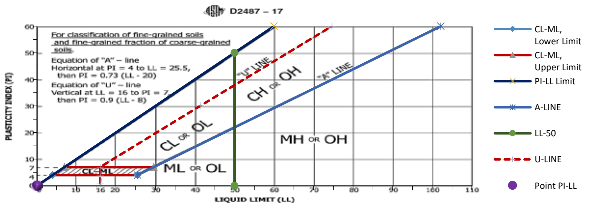
PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215328	Test Pit No. / Borehole No.:	BH-01	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	12.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310672	End Depth, m:	12.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	26-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-01 - S9 (12.50-12.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	**-**	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	3.1	1	1	**99**	-	-	-	-
No. 10	2.00	34.6	8	9	**91**	-	-	-	-
No. 20	0.850	139.6	32	40	**60**	-	-	-	-
No. 40	0.425	159.4	36	76	**24**	-	-	-	-
No. 60	0.250	48.8	11	87	**13**	-	-	-	-
No. 140	0.106	29.9	7	94	**6**	-	-	-	-
No. 200	0.075	3.3	1	95	**5**	-	-	-	-
Pan	-	22.7	5	100	**0**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-



Mass of the Tested Sample,g	441.4	Moisture Content	4%



Description	Test Result	Description	Test Result
Gravel	**1%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	1%
Sand	**94%**	Coarse (2.00 - 4.75 mm)	8%
		Medium (0.425 - 2.00 mm)	67%
		Fine (0.075 - 0.425 mm)	19%
Fines	**5%**		

Cu	4.911
Cc	1.547
D_{60}, mm	0.850
D_{30}, mm	0.477
D_{10}, mm	0.173
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Poorly Graded Sand with Silt (SP-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS Serial No.	2173472
Reporting Date	02-Nov-22
Page	1 of 1

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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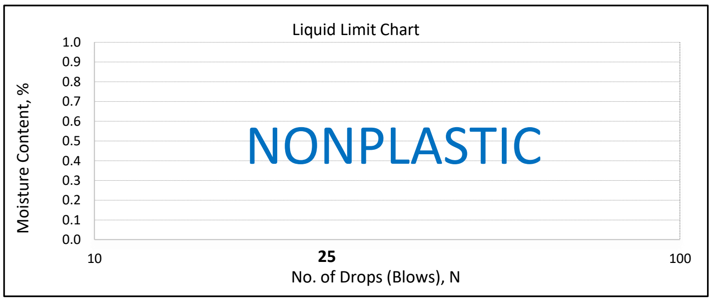
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215328	Description of Sample	Approximate Max Grain Size, mm:	4.75
Customer Reference:	-		Est. Sample Retained on 425µm, %:	76
ACTS Reference:	OCT2231310673		As received Water Content, %:	4
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	26-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	29-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-01	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	12.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	12.95			-
Sample Location, Description, Ident. and other required info. :	BH-01 - S9 (12.50-12.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



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Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
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ACTS Serial No.:	2173473
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

ASTM D5731 − 16

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

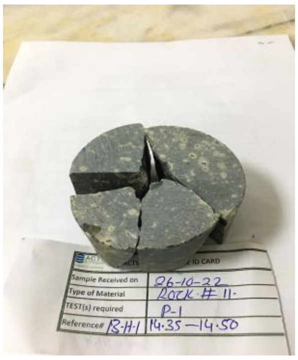
TWO No.:	ACTS-2215328	Name of Source / Supplier:		-
Customer Reference:	-	Bore Hole Number:		BH-01
ACTS Reference:	OCT2231310674	Start Depth, m:		14.35
IR / WIR / RFI / Number:	-	End Depth, m:		14.50
Sampling Date:	-	Storage (Curatorial History) Environment:		-
Receiving Date:	26-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:	29-Oct-22		Model:	Matest A125
Sample Type:	Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:	Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:		-
Name or Initial of Person(s) — Sampling:	-	Sampling Plan Used if any:		-
Name or Initial of Person(s) — Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:	BH-01 - S11 (14.35-14.50)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		34.5
D, Platen Separation, mm		34.5
De^2, mm^2		2790
De, Equivalent Core Diameter, De, mm		52.8
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		31.8
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		11.4
F, Size Correction Factor		1.02
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**11.6**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**226**
(1) Strength Classification		**Extremely High**

PHOTOS

Sample Received on 26-10-22
Type of Material Rock # 11.
TEST(s) required P-1
Reference# B-H-1 14.35—14.50

Before


Sample Received on 26-10-22
Type of Material Rock # 11.
TEST(s) required P-1
Reference# B-H-1 14.35—14.50

After

Remark(s):
(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS Serial No.:	2173474
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications

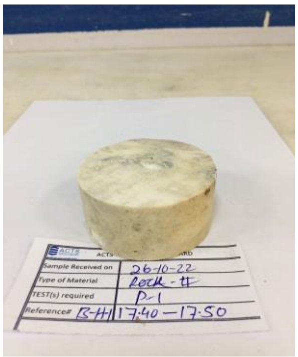
ASTM D5731 − 16

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

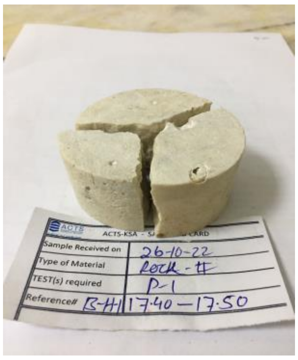
TWO No.:		ACTS-2215328	Name of Source / Supplier:		-
Customer Reference:		-	Bore Hole Number:		BH-01
ACTS Reference:		OCT2231310675	Start Depth, m:		17.40
IR / WIR / RFI / Number:		-	End Depth, m:		17.50
Sampling Date:		-	Storage (Curatorial History) Environment:		-
Receiving Date:		26-Oct-22	Test Apparatus Used	Name:	Digital Point Load Tester
Testing Date:		29-Oct-22		Model:	Matest A125
Sample Type:		Rock		Calibration:	Valid till 27-06-2023
Sample Located / Selected by:		Customer	ASTM D2216, Method Used (A/B):		Method B(0.1%)
Sample Collected / Extracted by:		ACTS	Sampling Method Used:		-
Name or Initial of Person(s)	Sampling:	-	Sampling Plan Used if any:		-
	Preparation and Testing:	Aftab	Methodology Used for Significant Digits and Rounding Off Numbers:		-
Sample Location, Identification and other required information:		BH-01 - S13 (17.40-17.50)			

Sample Reference		1
Test Type	Shape	Axial
	Orientation to the Plane of Weakness	-
Actual Width of Specimen, mm		-
Actual Diameter of Specimen (for Diametral & Axial) / Height (for block & irregular lump), mm		63.5
Total Actual Length / Thickness(Axial) of Specimen, mm		34.5
D, Platen Separation, mm		34.5
De^2, mm^2		2790
De, Equivalent Core Diameter, De, mm		52.8
Moisture Condition / Moisture Content at the time of Testing, %		As Received
P, Load, kN		8.50
Type of Failure		Valid
Location of Failure		-
Is, Uncorrected Point Load Strength Index, MPa		3.05
F, Size Correction Factor		1.02
$Is_{(50)}$, Corrected Point Load Strength Index, MPa		**3.11**
(2) K, Index to Strength Conversion Factor		19.8
σ_c, Uniaxial Compressive Strength, MPa		**60.4**
(1) Strength Classification		**Very High**

PHOTOS



Before



After

Remark(s):

(1) Strength Classification based on ASTM D5731-16, Fig 6

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.:	2173475
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215328	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-01
IR / WIR / RFI / Number:	-	Start Depth, m:	27.50
ACTS Reference:	OCT2231310676	End Depth, m:	27.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	26-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-01 - S16 (27.50-27.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	915
M_{cds}, Mass of Container and Oven Dry Specimen, g	891.8
M_c, Mass of Container, g	498.7
Mass of Moist Specimen, g	416.3
M_w, Mass of Water, g	23.2
M_s, Mass of Oven Dry Specimen, g	393.1
w, Water Content, %	6

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
Build on our credentials

ACTS Serial No:	2173476
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

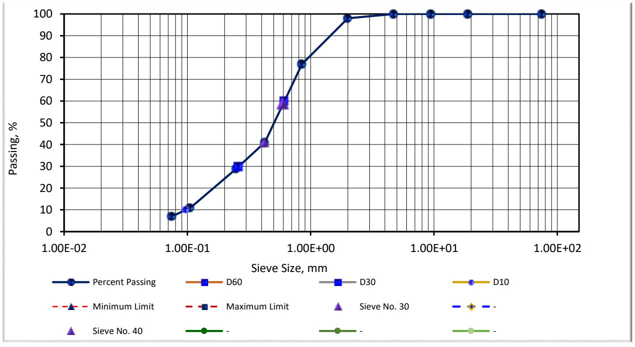
ASTM D2487-17 and ASTM D3282-15

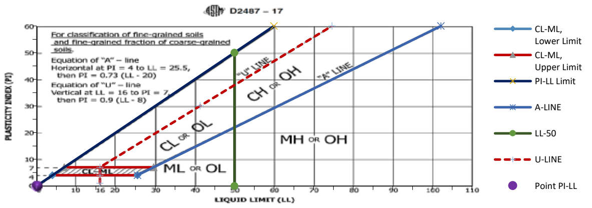
PROJECT: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR: PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.: -
TESTED AT: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215328	Test Pit No. / Borehole No.:	BH-01	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	27.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310677	End Depth, m:	27.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	26-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-01 - S16 (27.50-27.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	-	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	1.8	0	0	**100**	-	-	-	-
No. 10	2.00	4.6	1	2	**98**	-	-	-	-
No. 20	0.850	84.5	21	23	**77**	-	-	-	-
No. 40	0.425	141.5	36	59	**41**	-	-	-	-
No. 60	0.250	47.2	12	71	**29**	-	-	-	-
No. 140	0.106	70.2	18	89	**11**	-	-	-	-
No. 200	0.075	15.7	4	93	**7**	-	-	-	-
Pan	-	27.6	7	100	**0**	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Mass of the Tested Sample,g	393.1	Moisture Content	6%





Description	Test Result	Description	Test Result
Gravel	**0%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	**93%**	Coarse (2.00 - 4.75 mm)	2%
		Medium (0.425 - 2.00 mm)	57%
		Fine (0.075 - 0.425 mm)	34%
Fines	**7%**		

Cu	6.303
Cc	1.146
D_{60}, mm	0.613
D_{30}, mm	0.261
D_{10}, mm	0.097
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION		
	ASTM D 2487	**Well Graded Sand with Silt(SW-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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ACTS Serial No.	2173477
Reporting Date	02-Nov-22
Page	1 of 1

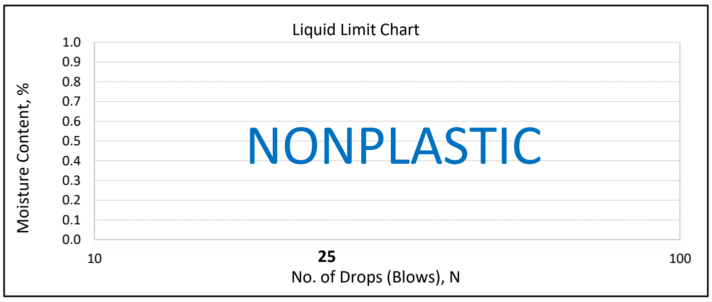
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215328	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425µm, %:	59
ACTS Reference:	OCT2231310678		As received Water Content, %:	6
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	26-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	29-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-01	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	27.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	27.95			-
Sample Location, Description, Ident. and other required info. :	BH-01 - S16 (27.50-27.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.:	2173478
Reporting Date:	02-Nov-22
Page	1 of 1

TEST REPORT
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2216 − 19

Project:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor:	PC Marine
Consultant:	-
Customer:	ACTS GEOTECHNICAL
Customer's Contact Info:	-
Tested at:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215328	Name of Supplier / Source:	-
Customer Reference:	-	Bore Hole Number:	BH-01
IR / WIR / RFI / Number:	-	Start Depth, m:	39.50
ACTS Reference:	OCT2231310679	End Depth, m:	39.95
Sampling Date:	-	Test Method Used:	Method A (1%)
Receiving Date:	26-Oct-22	Sampling Method Used:	-
Testing Date:	28-Oct-22	Sampling Plan Used if any:	-
Sample Type:	Soil	Mention if Test Specimen contains more than one material type (layered, etc.).	-
Sample Selected / Located by:	Customer	Mention if Any Material (size and amount) was excluded from the Test Specimen:	-
Sample Collected / Extracted by:	ACTS	Drying Temperature if different from 110± 5°C., °C:	-
Name or Initial of Person(s) who performed the test:	Aftab	Methodology used for significant digits and rounding off numbers:	-
	-	-	-
Sample Location, Identification and other required information:	BH-01 - S21 (39.50-39.95)	-	-

M_{cms}, Mass of Container and Moist Specimen, g	923.7
M_{cds}, Mass of Container and Oven Dry Specimen, g	902.7
M_c, Mass of Container, g	553.7
Mass of Moist Specimen, g	370
M_w, Mass of Water, g	21
M_s, Mass of Oven Dry Specimen, g	349
w, Water Content, %	6

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared by	Reviewed by	Approved by
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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ACTS Serial No:	2173479
Reporting Date:	2-Nov-22
Page	1 of 1

STANDARD PRACTICE REPORT

Classification of Soils and Soil-Aggregate Mixtures for Engineering Purposes (Unified Soil Classification System) and Highway Construction Purposes

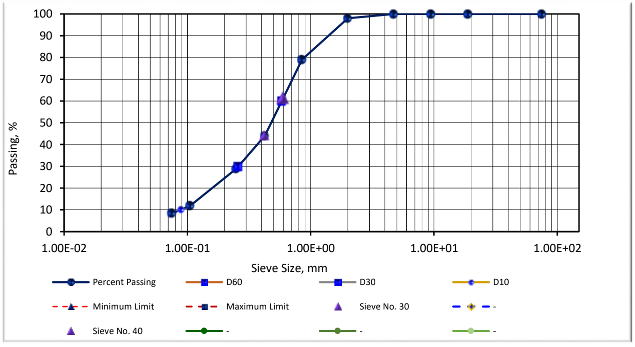
ASTM D2487-17 and ASTM D3282-15

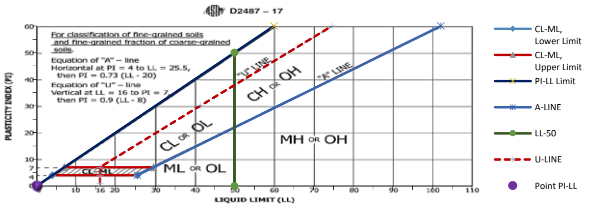
PROJECT:	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR:	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO.:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No.:	ACTS-2215328	Test Pit No. / Borehole No.:	BH-01	Standard Test Methods Used	ASTM D6913
Customer Ref.:	-	Start Depth, m:	39.50		ASTM D1140-17 - Method A (Soaked in Water)
ACTS Reference:	OCT2231310680	End Depth, m:	39.95		ASTM D2216-10, Method A (1%)
IR / WIR / RFI No.:	-	Specification / Reference:	-		ASTM D4318-17
Sampling Date:	-	Sample Type / Layer as per Specification:	-		-
Receiving Date:	26-Oct-22			Name or Initials of the person(s) who prepared and tested the sample(s):	Aftab
Testing Date:	29-Oct-22	Type of Structure / Area:	-		-
Sample Type :	Soil	Sampling Method Used:	-	-	-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:	-	-	-
Sample Collected / Extracted by:	ACTS	Presence of Cobbles or/and Boulders:	-	-	-
Name of Source / Supplier:	-	Methodology used to specify how data are recorded:	-	-	-
Sample Location, Identification, Description:	BH-01 - S21 (39.50-39.95)				

Sieve No.	Sieve Opening	Retained Mass	Retained Mass	Cumulative Retained	Percent passing	-			Compliance Remarks
	mm	g	%	%	%	Minimum		Maximum	
6 in.	150.0	-	-	-	**-**	-	-	-	-
3 in.	75.0	0.0	0	0	**100**	-	-	-	-
3/4 in.	19.0	0.0	0	0	**100**	-	-	-	-
3/8 in.	9.5	0.0	0	0	**100**	-	-	-	-
No. 4	4.75	1.4	0	0	**100**	-	-	-	-
No. 10	2.00	6.7	2	2	**98**	-	-	-	-
No. 20	0.850	65.7	19	21	**79**	-	-	-	-
No. 40	0.425	121.2	35	56	**44**	-	-	-	-
No. 60	0.250	52.0	15	71	**29**	-	-	-	-
No. 140	0.106	60.3	17	88	**12**	-	-	-	-
No. 200	0.075	12.5	4	92	**8**	-	-	-	-
Pan	-	29.2	8	100	**0**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-
-	-	-	-	-	**-**	-	-	-	-

Mass of the Tested Sample,g	349.0	Moisture Content	6%





Description	Test Result	Description	Test Result
Gravel	**0%**	Coarse (19 - 75 mm)	0%
		Fine (4.75 - 19 mm)	0%
Sand	**92%**	Coarse (2.00 - 4.75 mm)	2%
		Medium (0.425 - 2.00 mm)	54%
		Fine (0.075 - 0.425 mm)	36%
Fines	**8%**		

Cu	6.544
Cc	1.289
D_{60}, mm	0.583
D_{30}, mm	0.259
D_{10}, mm	0.089
-	-
-	-

ASTM D4318-17		
1st Test	LL	NP
	PL	NP
	PI	NP
2nd Test, Oven Dried for Organic	LL	-
	PL	-
	PI	-

SOIL CLASSIFICATION	ASTM D 2487	**Well Graded Sand with Silt(SW-SM)**
	ASTM D 3282 (AASHTO M145-3)	**A-1-b(0) Stone Fragments,Gravel and Sand**

Remarks:

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173480
Reporting Date	02-Nov-22
Page	1 of 1

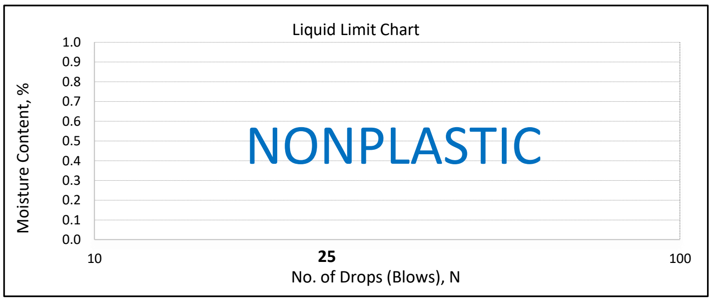
TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS
ASTM D4318-17

PROJECT :	Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR :	PC Marine
CONSULTANT:	-
CUSTOMER:	ACTS GEOTECHNICAL
CUSTOMER'S CONTACT INFO:	-
TESTED AT:	ACTS Jeddah Main Branch

TWO No:	ACTS-2215328	Description of Sample	Approximate Max Grain Size, mm:	2
Customer Reference:	-		Est. Sample Retained on 425µm, %:	56
ACTS Reference:	OCT2231310681		As received Water Content, %:	6
IR / WIR / RFI Number:	-	Special Specimen Selection Process Used(if any):		-
Sampling Date:	-	Specimen Preparation Procedure Used:		Wet Preparation
Receiving Date:	26-Oct-22	Method of Removing Particles Larger than the 425-µm (No. 40) Sieve:		-
Testing Date:	29-Oct-22	Drying Method Used (During Preparation of Specimen):		Exposing to warm air currents
Sample Type:	Soil	Sampling Method Used:		-
Sample Located / Selected by:	Customer	Sampling Plan Used if any:		-
Sample Collected / Extracted by:	ACTS	Reference / Specification:		-
Name of Source / Supplier	-	Type of Soil (According to Specification):		-
Test Pit No. / Borehole No:	BH-01	Methodology used to specify how data are recorded on the test data:		-
Start Depth, m:	39.50	Name or Initials of the person(s)who prepared and tested the samples:		Aftab
End Depth, m:	39.95			-
Sample Location, Description, Ident. and other required info. :	BH-01 - S21 (39.50-39.95)			

Test	Liquid Limit Method A (Multipoint Method)			Plastic Limit		
Testing Equipment Used	Mechanical Liquid Limit Device Metal Grooving Tool			Hand Rolled(Plastic Limit Rolling Procedure 1)		
No. of Drops (Blows), N	-	-	-	---	---	---
Container Ref.	-	-	-	-	-	-
A, Mass of Container, g	-	-	-	-	-	-
B, Mass of Wet Soil + Container, g	-	-	-	-	-	-
C, Mass of Dry Soil + Container, g	-	-	-	-	-	-
Moisture content % $\left(\frac{B-C}{C-A}\right)\times 100$	-	-	-	-	-	-
Limits	Liquid (LL) =		NP	Plastic (PL) =		NP
Plasticity Index (PI)	PI = (LL - PL) =		NP			

	Test Results	Requirements / Limits	Compliance Remarks
LL	**NP**	-	-
PL	**NP**	-	-
PI	**NP**	-	-



No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

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ACTS Serial No.	2173618
Reporting Date	02-Nov-22
Page	1 of 1

TEST REPORT
Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils
ASTM D2974 − 20$^{\varepsilon 1}$

Project: Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
Contractor: PC Marine
Consultant: -
Customer: ACTS GEOTECHNICAL
Customer's Contact Info: -
Tested at: ACTS Jeddah Main Branch

TWO No.:	ACTS-2215328	Name of Supplier / Source:	-
Customer Reference:	-	Drill Hole/Bore Hole Number:	BH-01
IR / WIR / RFI / Number:	-	Start Depth, m:	39.50
ACTS Reference:	OCT2231310682	End Depth, m:	39.95
Sampling Date:	26-Oct-22	Reference or Specification Used:	-
Receiving Date:	26-Oct-22	Test Method Used:	Method A (General Classification)
Testing Date:	02-Nov-22	Sampling Method Used:	-
Sample Selected / Located by:	Customer	Sampling Plan Used if any:	-
Sample Collected / Extracted by:	ACTS	Name or Initial of Person(s) who performed the test:	Noushad
Sample Type:	Soil		-
Sample Location, Identification and other required information:	BH-01 - S21 (39.50-39.95)	The methodology used to specify how data are recorded on the test data sheet(s)/form(s):	ASTM D6026
		-	-
		-	-

Mc, Mass of Container Plus Lid, g rounding .01	80.00
Mcms, Mass of Container with Lid plus Moist Specimen, g	105.60
Mcds, Mass of Container with lid plus Oven-Dried Specimen, g	105.55
Mw, Mass of Water, g	0.05
Ms, Mass of Oven-Dried Specimen, g	25.55
w, Water Content as a Percentage of Oven-Dried Mass, %	0
Mcas, Mass of Container with Lid plus Ashed Specimen, g	105.04
Ma, Mass of Ash, g	25.04
Furnace Temperature Used for Ash Content Determinations, °C	440

	Test Results	Requirements / Limits	Compliance Remark
Ac, Ash Content, %	98	-	-
Om, Organic Material, %	2	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account

The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed by	Approved by
Naeem		٤٠٣٠٢٢١١٦٨
Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager

LEGAL NOTICED:
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-END OF REPORT-

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ACTS Serial No.	2173619
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Determination of the pH value

BS 1377-3:2018, Clause 12

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215328	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-01
ACTS Reference:	OCT2231310683	Start Depth, m:	39.50
IR / WIR / RFI Number:	-	End Depth, m:	39.95
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	26-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Soil	Test Method Used:	Electrometric Method
Sample Located / Selected by:	Customer	Sampling Method Used:	-
Sample Collected / Extracted by:	ACTS	Sampling Plan Used if any:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Specification / Reference:	-
	-	-	-
Sample Location, Description, Identification and other required info.:	BH-01 - S21 (39.50-39.95)	-	-

	Test Results	Requirement / Limit	Compliance Remark
pH value of the soil suspension	8.0	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	س.ت. ٤٠٣٠٢٢١١٦٨ M. Johor Area Manager

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-END OF REPORT-

ACTS
ADVANCED CONSTRUCTION TECHNOLOGY SERVICES
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ACTS Serial No.	2173620
Reporting Date:	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests Determination of the Chloride Content

BS 1377-3:2018, Clause 9

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215328	Name of Source/Supplier:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-01
ACTS Reference:	OCT2231310684	Start Depth, m:	39.50
IR / WIR / RFI Number:	-	End Depth, m:	39.95
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	26-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type:	Soil	Test Method Used (Clause 9.2 or 9.3)	9.2 Determination of Water-Soluble Chloride Content (Volhard's Method)
Sample Located / Selected by:	Customer	Water to Soil Ratio Used for Preparing the Soluble Extract for Clause 9.2 only:	water-soil ratio is 2 : 1
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-01 - S21 (39.50-39.95)	-	-

Trial	1	2
Percentage by Dry Mass of the Original Sample Passing the 2 mm Test Sieve, %	98	-
V_2, Volume of the Silver Nitrate Solution added (AgNO3), mL	60.0	-
V_3, Volume of Standardized Thiocyanate Solution Added, ml	2.4	-
C, Concentration of the Standardized Thiocyanate Solution, mol/L	0.1	-

	Test Results	Requirements / Limit	Compliance Remark
Chloride Ion Content, %	0.41	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	M. Johor Area Manager ACTS

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-END OF REPORT-

ACTS
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ACTS Serial No.	2173621
Reporting Date	2-Nov-22
Page	1 of 1

TEST REPORT

Methods of Test for Soils for Civil Engineering Purposes – Part 3: Chemical and Electrochemical Tests
Gravimetric Method for Analysis of Acid or Water Extract or Groundwater Sulfate
BS 1377-3:2018, Clause 7.6

PROJECT : Jeddah Islamic Port - Demolition & re-construction of berths 26 to 31
CONTRACTOR : PC Marine
CONSULTANT: -
CUSTOMER: ACTS GEOTECHNICAL
CUSOMER'S CONTACT INFO.: -
TESTED AT : ACTS Jeddah Main Branch

TWO No:	ACTS-2215328	Name of Supplier / Source:	-
Customer Reference:	-	Test Pit No. / Borehole No.:	BH-01
ACTS Reference:	OCT2231310685	Start Depth, m:	39.50
IR / WIR / RFI Number:	-	End Depth, m:	39.95
Sampling Date:	-	Visual Description of Soil, Including Soil fabric and Any Unusual Features:	-
Receiving Date:	26-Oct-22	Location and Orientation of Test Specimens within the Original Sample:	-
Testing Date:	02-Nov-22	Comments on Observed or Inferred Sample Disturbance, Including Possible Loss of Moisture:	-
Sample Type :	Soil	Method of Preparation of Test Specimen:	-
Sample Located / Selected by :	Customer	Procedure Used:	Determination of Water-Soluble Sulfate in Soil (WS)
Sample Collected / Extracted by:	ACTS	Sampling Method Used:	-
Name or Initials of the person(s) who prepared and tested the samples:	Noushad	Sampling Plan Used if any:	-
	-	Specification / Reference:	-
Sample Location, Description, Identification and other required info.:	BH-01 - S21 (39.50-39.95)	-	-

Trial	1	2
Percentage Finer than 2 mm in Original Sample, %	98	-
Mass of Each Test Specimen Used, g	50.000	-
Mass of Ignited Precipitate, g	0.073	-
pH of Water Extract, pH	7.7	-

Description	Test Result	Requirement / Limit	Compliance Remark
SO_3, Water-Soluble Sulfate Content,mg/L	**500**	-	-
SO_3, Water-Soluble Sulfate Content,%	**0.10**	-	-
SO_4, Water-Soluble Sulfate Content, mg/L	**600**	-	-
SO_4, Water-Soluble Sulfate Content,%	**0.12**	-	-

Remark(s):

No statement of conformity to the specifications are made in this report, uncertainty was not taken into account
The sample will be disposed after one week of this report date unless the client requests for extension of storage or retrieval.

Prepared By	Reviewed By	Approved By
Naeem Muhammad Naeem Data Encoder	Ahmad Hoblos Materials Engineer	ACTS M. Johor Area Manager

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-END OF REPORT-

Appendix F– Core Recoveries Summary

ACTS ADVANCED CONSTRUCTION TECHNOLOGY SERVICES Build on our credentials	**Project Name**	Jeddah Islamic Port	**Date:**	16-Nov-22
	Project No.	ACTS/KSA/Q-20017/22	**Rev.**	00
	Client	PC Marine	**Made by:**	SD
	Calculation:	Summary of Core Recovereies	**Checked:**	MS

Borehole No.	Top (mbEGL)	Base (mbEGL)	Top (mEGM2008)	Base (mEGM2008)	TCR (%)	SCR (%)	RQD (%)	Geological Formation
BH01 - @ B26	0.00	1.00	3.00	2.00	48	35	35	(BACKFILL MATERIALS)
BH01 - @ B26	1.45	1.80	1.55	1.20	86	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	1.80	2.00	1.20	1.00	100	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	2.45	3.00	0.55	0.00	100	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	3.00	3.50	0.00	-0.50	100	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	6.95	8.00	-3.95	-5.00	18	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	8.45	9.00	-5.45	-6.00	73	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	9.00	9.50	-6.00	-6.50	80	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	9.50	11.00	-6.50	-8.00	67	57	17	(BACKFILL MATERIALS)
BH01 - @ B26	11.00	12.50	-8.00	-9.50	40	35	35	(BACKFILL MATERIALS)
BH01 - @ B26	12.95	14.00	-9.95	-11.00	10	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	14.30	15.00	-11.30	-12.00	43	15	15	(BACKFILL MATERIALS)
BH01 - @ B26	15.00	15.50	-12.00	-12.50	40	40	0	(BACKFILL MATERIALS)
BH01 - @ B26	15.95	17.00	-12.95	-14.00	43	27	0	(BACKFILL MATERIALS)
BH01 - @ B26	17.11	18.50	-14.11	-15.50	51	47	29	(BACKFILL MATERIALS)
BH01 - @ B26	18.50	20.00	-15.50	-17.00	67	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	20.00	21.50	-17.00	-18.50	67	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	21.50	22.00	-18.50	-19.00	90	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	22.00	23.00	-19.00	-20.00	50	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	23.45	24.50	-20.45	-21.50	29	0	0	(BACKFILL MATERIALS)
BH01 - @ B26	24.95	26.00	-21.95	-23.00	29	0	0	(BACKFILL MATERIALS)
BH01" - @ B26	0.00	1.00	3.00	2.00	23	11	0	(BACKFILL MATERIALS)
BH01" - @ B26	1.20	2.50	1.80	0.50	25	0	0	(BACKFILL MATERIALS)
BH01" - @ B26	2.55	4.00	0.46	-1.00	15	0	0	(BACKFILL MATERIALS)
BH01" - @ B26	4.45	5.50	-1.45	-2.50	12	0	0	(BACKFILL MATERIALS)
BH01" - @ B26	5.71	7.00	-2.71	-4.00	19	0	0	(BACKFILL MATERIALS)
BH01" - @ B26	7.19	8.50	-4.19	-5.50	23	14	14	(BACKFILL MATERIALS)
BH01" - @ B26	8.50	9.00	-5.50	-6.00	100	60	0	(BACKFILL MATERIALS)
BH01" - @ B26	9.00	9.50	-6.00	-6.50	88	0	0	(BACKFILL MATERIALS)
BH01" - @ B26	9.50	11.00	-6.50	-8.00	73	45	0	(BACKFILL MATERIALS)
BH01" - @ B26	11.00	12.50	-8.00	-9.50	67	31	20	(BACKFILL MATERIALS)
BH01" - @ B26	12.62	14.00	-9.62	-11.00	17	0	0	(BACKFILL MATERIALS)
BH01" - @ B26	14.00	15.50	-11.00	-12.50	30	25	0	(BACKFILL MATERIALS)
BH01" - @ B26	15.55	17.00	-12.55	-14.00	22	22	18	(BACKFILL MATERIALS)
BH01" - @ B26	17.45	18.50	-14.45	-15.50	55	0	0	(BACKFILL MATERIALS)
BH02 - @ B26	6.95	8.00	-3.95	-5.00	20	0	0	(BACKFILL MATERIALS)
BH02 - @ B26	9.95	11.00	-6.95	-8.00	19	0	0	(BACKFILL MATERIALS)
BH02 - @ B26	11.12	12.50	-8.12	-9.50	29	22	0	(QUATERNARY DEPOSITS)
BH02 - @ B26	12.64	14.00	-9.64	-11.00	40	15	0	(QUATERNARY DEPOSITS)
BH02 - @ B26	17.12	18.50	-14.12	-15.50	39	36	0	(QUATERNARY DEPOSITS)
BH02 - @ B26	18.64	19.50	-15.64	-16.50	44	27	27	(QUATERNARY DEPOSITS)
BH02 - @ B26	19.68	20.00	-16.68	-17.00	68	0	0	(QUATERNARY DEPOSITS)
BH03 - @ B28	0.00	1.00	3.00	2.00	30	15	15	(BACKFILL MATERIALS)
BH03 - @ B28	10.11	11.50	-7.11	-8.50	46.3	46.3	0	(BACKFILL MATERIALS)
BH03 - @ B28	28.45	29.80	-25.45	-26.80	44.4	44.4		(QUATERNARY DEPOSITS)
BH03 - @ B28	29.80	32.00	-26.80	-29.00	77.3	77.3	34	(QUATERNARY DEPOSITS)
BH04 - @ B29	0.00	1.50	3.00	1.50	45	40	12	(BACKFILL MATERIALS)
BH04 - @ B29	1.50	2.00	1.50	1.00	64	0	0	(BACKFILL MATERIALS)
BH04 - @ B29	3.60	5.00	-0.60	-2.00	13	0	0	(BACKFILL MATERIALS)
BH04 - @ B29	6.50	8.00	-3.50	-5.00	49	6	0	(BACKFILL MATERIALS)
BH04 - @ B29	8.00	9.50	-5.00	-6.50	43	0	0	(BACKFILL MATERIALS)
BH04 - @ B29	9.50	11.00	-6.50	-8.00	67	20	0	(BACKFILL MATERIALS)
BH04 - @ B29	11.11	12.50	-8.11	-9.50	16	0	0	(BACKFILL MATERIALS)
BH04 - @ B29	12.61	14.00	-9.61	-11.00	15	7	0	(BACKFILL MATERIALS)
BH04 - @ B29	14.00	15.50	-11.00	-12.50	66	66	31	(BACKFILL MATERIALS)
BH04 - @ B29	15.50	17.00	-12.50	-14.00	57	51	24	(BACKFILL MATERIALS)
BH04 - @ B29	17.45	18.50	-14.45	-15.50	24	11	0	(BACKFILL MATERIALS)
BH04 - @ B29	18.95	20.00	-15.95	-17.00	11	6	0	(BACKFILL MATERIALS)
BH04 - @ B29	20.00	21.50	-17.00	-18.50	50	12	12	(BACKFILL MATERIALS)
BH04 - @ B29	21.61	23.00	-18.61	-20.00	49	11	0	(BACKFILL MATERIALS)

BH04 - @ B29	32.45	34.00	-29.45	-31.00	18	18	0	(QUATERNARY DEPOSITS)
BH04 - @ B29	34.00	35.00	-31.00	-32.00	100	95	12	(QUATERNARY DEPOSITS)
BH04 - @ B29	35.00	36.00	-32.00	-33.00	100	96	58	(QUATERNARY DEPOSITS)
BH04 - @ B29	36.00	37.00	-33.00	-34.00	80	80	27	(QUATERNARY DEPOSITS)
BH05 - @ B28	0.00	2.00	3.00	1.00	50	15	15	(BACKFILL MATERIALS)
BH05 - @ B28	8.45	9.50	-5.45	-6.50	29	29	19	(QUATERNARY DEPOSITS)
BH05 - @ B28	9.63	11.00	-6.63	-8.00	16	0	0	(QUATERNARY DEPOSITS)
BH06 - @ B27	0.00	1.50	3.00	1.50	10	0	0	(BACKFILL MATERIALS)
BH06 - @ B27	1.50	2.00	1.50	1.00	90	0	0	(BACKFILL MATERIALS)
BH06 - @ B27	2.10	3.50	0.90	-0.50	29	0	0	(BACKFILL MATERIALS)
BH06 - @ B27	9.50	11.00	-6.50	-8.00	67	24	14	(BACKFILL MATERIALS)
BH06 - @ B27	11.11	12.50	-8.11	-9.50	58	36	7	(BACKFILL MATERIALS)
BH06 - @ B27	12.61	14.00	-9.61	-11.00	22	0	0	(BACKFILL MATERIALS)
BH06 - @ B27	15.62	17.00	-12.62	-14.00	19	0	0	(BACKFILL MATERIALS)
BH06 - @ B27	17.19	18.50	-14.19	-15.50	20	0	0	(BACKFILL MATERIALS)
BH06 - @ B27	18.50	20.00	-15.50	-17.00	67	44	0	(BACKFILL MATERIALS)
BH06 - @ B27	20.05	21.50	-17.05	-18.50	21	20	10	(BACKFILL MATERIALS)
BH06 - @ B27	23.12	24.50	-20.12	-21.50	18	0	0	(BACKFILL MATERIALS)
BH06 - @ B27	24.62	26.00	-21.62	-23.00	18	0	0	(BACKFILL MATERIALS)
BH06 - @ B27	26.13	27.50	-23.13	-24.50	17	0	0	(BACKFILL MATERIALS)
BH06 - @ B27	38.11	40.00	-35.11	-37.00	40	38	7	(QUATERNARY DEPOSITS)
BH07 - @ B30	0.00	1.50	3.00	1.50	44	17	17	(BACKFILL MATERIALS)
BH07 - @ B30	1.50	3.50	1.50	-0.50	60	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	3.62	5.00	-0.62	-2.00	18	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	5.20	6.50	-2.20	-3.50	23	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	6.55	8.00	-3.55	-5.00	17	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	8.11	9.50	-5.11	-6.50	13	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	9.63	11.00	-6.63	-8.00	22	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	11.12	12.50	-8.12	-9.50	15	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	12.63	14.00	-9.63	-11.00	16	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	14.19	15.50	-11.19	-12.50	19	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	15.76	17.00	-12.76	-14.00	20	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	17.04	18.50	-14.04	-15.50	24	0	0	(BACKFILL MATERIALS)
BH07 - @ B30	18.70	19.00	-15.70	-16.00	33	33	33	(BACKFILL MATERIALS)
BH07 - @ B30	21.50	23.00	-18.50	-20.00	66	45	21	(BACKFILL MATERIALS)
BH07 - @ B30	23.00	24.50	-20.00	-21.50	66	20	10	(BACKFILL MATERIALS)
BH07 - @ B30	33.50	35.00	-30.50	-32.00	66	40	0	(QUATERNARY DEPOSITS)
BH07 - @ B30	35.00	36.50	-32.00	-33.50	66	35	23	(QUATERNARY DEPOSITS)
BH07 - @ B30	36.50	38.00	-33.50	-35.00	53	47	30	(QUATERNARY DEPOSITS)
BH07 - @ B30	38.00	39.50	-35.00	-36.50	44	20	0	(QUATERNARY DEPOSITS)
BH08 - @ B31	0.00	2.00	3.00	1.00	50	15	15	(BACKFILL MATERIALS)
BH08 - @ B31	2.20	3.50	0.80	-0.50	22	0	0	(BACKFILL MATERIALS)
BH08 - @ B31	3.95	5.00	-0.95	-2.00	32	0	0	(BACKFILL MATERIALS)
BH08 - @ B31	5.19	6.50	-2.19	-3.50	62	0	0	(BACKFILL MATERIALS)
BH08 - @ B31	6.61	8.00	-3.61	-5.00	54	0	0	(BACKFILL MATERIALS)
BH08 - @ B31	8.45	9.50	-5.45	-6.50	34	0	0	(BACKFILL MATERIALS)
BH08 - @ B31	9.56	11.00	-6.56	-8.00	21	20	11	(BACKFILL MATERIALS)
BH08 - @ B31	11.00	12.50	-8.00	-9.50	50	37	16	(BACKFILL MATERIALS)
BH08 - @ B31	12.62	14.00	-9.62	-11.00	15	0	0	(BACKFILL MATERIALS)
BH08 - @ B31	14.11	15.00	-11.11	-12.00	38	38	0	(BACKFILL MATERIALS)
BH08 - @ B31	15.00	15.50	-12.00	-12.50	60	0	0	(BACKFILL MATERIALS)
BH09 - @ B31	0.00	1.50	3.00	1.50	24	17	10	(BACKFILL MATERIALS)
BH09 - @ B31	1.95	3.00	1.05	0.00	43	0	0	(BACKFILL MATERIALS)
BH09 - @ B31	3.45	4.50	-0.45	-1.50	24	0	0	(BACKFILL MATERIALS)
BH09 - @ B31	4.75	6.00	-1.75	-3.00	28	0	0	(BACKFILL MATERIALS)
BH09 - @ B31	6.12	7.50	-3.12	-4.50	22	0	0	(BACKFILL MATERIALS)
BH09 - @ B31	7.69	9.00	-4.69	-6.00	23	20	12	(BACKFILL MATERIALS)
BH09 - @ B31	9.00	10.50	-6.00	-7.50	67	0	0	(BACKFILL MATERIALS)